

## REMARKS

Claims 1-31 were submitted for examination on April 24, 2000 (hereinafter referred to as “Application”). On July 25, 2003, the Examiner issued a Detailed Action. Applicant’s detailed  
5 response to the Detailed Action is hereby conveyed. As set forth above, John Kenneth Amick, hereinafter referred to as “Applicant,” has been granted an extension of time to respond through and including July 17, 2004.

1. Rejection Under 35 U.S.C. §112, first paragraph, as failing to comply with the  
10 enablement requirement:

“The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most clearly connected, to make and use the same and shall set forth the best mode contemplated by  
15 the inventor of carrying out his invention.”

The Examiner rejected Claims 1, 2, 11, 17, 22 and 23, under 35 U.S.C. § 112, first  
paragraph,

“ . . . as failing to comply with the enablement requirement. The claim(s) contains subject  
20 matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

“The limitation recited as ‘CALL PULL-BACK mechanism’ (e.g. line 1 claim 1  
25 or line 2 claim 2) is not provided in the claims nor is it in the specifications with sufficient description as to enable understanding by one skilled in the art in order to produce or make use of what such limitation represents. Pages 2, 6-7 of the specs refers this CALL PULL-BACK mechanism to a patent application for further understanding, and this application ( 09/266,724) is cited in page 1 as only a cross-reference, not part of  
30 the specifications. Given the level of the ordinary skill in the art, the nature of the invention, the amount of direction provided by the inventor, and the quantity of experimentation expected to make or make use of the invention, the above referring to a pending application is not deemed sufficient to teach one skilled in the art to make and/or use the full scope of the claimed invention without undue experimentation.”

35 Applicant respectfully traverses this rejection.

At the time the present patent application document (hereinafter referred to as “Application”) was originally filed, on April 24, 2000, the CALL PULL-BACK mechanism patent application was pending but not yet issued. It has since been issued as U.S. patent Serial No. 6,088,437, dated July 11, 2000 (hereinafter referred to as “CALL PULL-BACK”), the entire contents of which are incorporated herein by reference. The Application has been amended (hereinafter referred to as “Amended Application”) to include the issued patent serial number and other identifying information. Such amendment inserts sufficient description as to enable understanding by one skilled in the art in order to produce or make use of what the CALL PULL-BACK mechanism limitation represents.

In addition, Applicant submits the following expanded description regarding Claims 1, 2, 11, 17, 22 and 23, to further enable understanding by one skilled in the art in order to produce or make use of what the CALL PULL-BACK mechanism limitation represents:

**As Per Claim 1**

Claim 1, as set forth in the Application, provides:

“1. A method for configuring a communications system having a CALL PULL-BACK mechanism, comprising the steps of:

“**populating** a digital repository with preprogrammed software objects;

“**selecting** a subset of the preprogrammed software objects from the digital repository;

“**customizing** the subset of preprogrammed software objects with user defined parameters so as to implement predetermined functions when executed by a processor;

“**mapping** the predetermined functions to corresponding operating system inputs; and

“**performing** the predetermined functions when initiated by the corresponding operating system inputs.” [Emphasis added.]

“Populating a digital repository with preprogrammed software objects” refers to populating a hard drive and encoding memory with the preprogrammed software objects detailed on pages 15-44 of the Amended Application.

Over time, hardware and software upgrades require rewriting of the objects. What does not change is the basic functionality of the objects as defined in the Object/Class of Service documentation incorporated in the body of this patent application: The OBJ/COS numbers 0 through 511 each contain a sentence reminding an experienced user what that object is for, whether or not that object is associated with a specific area code, and a more detailed description of the functionality of that object to be used by those less skilled in configuring a client’s application or as a specification used in the rewriting of that object. Once the functionality of each object is known, it is a simple matter to rewrite each object as needed to accommodate the new language or platform.

**Selecting** a subset of the preprogrammed software objects from the digital repository refers to the creation of a client specific structure such as that shown in figure 10. These structures or applications provide call processing, plug in applications modules and multimedia messaging. Note that in figure 10, objects 468,1, 32 and 469 are used to create that client’s structure.

**Customizing** the subset of preprogrammed software objects with user defined parameters refers to the implementation of predetermined functions when initiated by the corresponding operating system inputs.

One starts by placing a user’s mailbox in the appropriate object. A hypothetical example would be mailbox 1000 has a phone number associated with it and it is placed in Object 51. It would be entered in the user’s table as 1000,xxxxxxx,51. xxxxxxxx would equal the 7-digit

phone number to be dialed. A caller entering that mailbox number would cause the Call Processor to automatically dial the appropriate access code – in this case, 9 then 1,305 and the 7-digit phone number associated with the mailbox number to the PSTN.

CALL PULL-BACK is engaged and if no one answered, a greeting would be played and the caller would be offered an option to leave a message. While listening to the greeting the caller could enter another extension number or select a menu choice.

The other objects, while different, are just as simple as Object 51. User definable parameters are such things as the design of the client specific application, security codes, greetings, cell or pager numbers, message waiting times, etc.

**Mapping** the predetermined functions to corresponding operating system inputs refers to performing the predetermined functions when initiated by the corresponding operating system inputs, as detailed in the Object/Class of Service documentation on pages 15 through 44 of this Amended Application.

For example, under the description heading for object 4 it states (If a caller presses a zero, a ring-all hunt group is activated). Under the description heading for object 12, it is stated that that object is normally used to play a recording twice, which may give the caller enough time to take an action such as dialing an extension or selecting a choice. After greeting plays or if the caller takes no action, the caller is moved to a different part of the application. This object is also used as a way to rapidly and automatically move a caller from one mailbox to another.

Other objects are similarly documented.

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### As Per Claim 2

Claim 2, as set forth in the Application, provides:

“2. **The method of Claim 1**, wherein the predetermined functions are associated with said CALL PULL-BACK mechanism.” [Emphasis added.]

**The method of Claim 1** is described in the explanation of figure 10, starting on page 45 of the Amended Application. Page 46 lines 15 through 18 state (When a mailbox such as (M/B) 83800,9979390,32 (see 4 in Figure 10) is reached by a caller selecting choice “0” which is the  
5 business hours intercept (the operator), the object obtains the appropriate external dial tone and dials the telephone number XXX-XXXX. Once the telephone is dialed, CALL PULL-BACK is employed).

CALL PULL-BACK technology is disclosed in the issued U.S. Patent, Serial No. 6,088,437 dated July 11, 2000. The objects are first disclosed in the ABSTRACT OF THE  
10 DISCLOSURE of that patent wherein it is stated that the signaling attributes and customer-specific information are controlled by objects, which are well thought out preprogrammed and proven software constructs that simplify programming and ensure reliable operations.

**As Per Claim 11**

15 Claim 11, as set forth in the Application, provides:

“11. **The system of claim 10**, wherein the predetermined functions are associated with a CALL PULL-BACK mechanism.” [Emphasis added.]

20 **The system of claim 10:** in order to better understand the system of claim 10, it is important to understand the CALL PULL-BACK technology as disclosed in the issued U.S. Patent, Serial No. 6,088,437, dated July 11, 2000, which allows a caller to take an action resulting in an out dial. Once that out dial occurs, a tone receiver is placed on the line, frequency and cadence are analyzed and the caller is connected or informed of the status of the called party  
25 and may be given message options. Page 4, lines 4-7, state that objects may work in conjunction with the CALL PULL-BACK technology described and disclosed in co-pending U.S. utility

patent application serial No. 09/266,724 that is now the issued U.S. Patent, Serial No. 6,088,437.

Not all objects out dial calls but all Objects have predetermined functions.

A detailed example of this system refers to figures 1 and 2, starting on page 7 line 11, under the heading of (DESCRIPTION OF THE PREFERRED EMBODIMENTS), and ends on

5 page 8 line 20. Of particular note, page 7, lines 18-19, state that:

“The virtual environment node or hub 4 contains the equipment hosting the application that is implemented through the use of OBJECTS.”

Page 7 lines 24-25 states:

10 “The caller dials an extension, spells some letters of a name, or otherwise makes a selection which will cause the OBJECTS to dial the appropriate remote telephone number 8.”

**As Per Claim 17**

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Claim 17, as set forth in the Application, provides:

“17. **The computer program product of claim 16**, wherein the predetermined functions are associated with a CALL PULL-BACK mechanism.” [Emphasis added.]

20

**The computer program product of claim 16** is disclosed under the heading of (OBJECT/Class of Service documentation) starting on page 15 and ending on page 44. All objects have predetermined functions but not all objects out dial, thereby employing the CALL PULL-BACK mechanism. Those that do out dial are Objects 1, 3, 4, 7, 11, 12, 15, 16, 17, 18, 25 21, 30, 31, 32, 33, 34, 35, 36, 37, and the subset of area code specific objects starting on page 31. For clarity, only one set of area code specific objects is shown, but, in reality, an identical set of area code specific objects exists for every area code. The only thing that changes is the area code. The area code specific objects that out dial are 50, 51, 52, 53, 54, 55, 56, 57, 455, 457, 458, 462, 463, 469, 472 if desired, 473, 474 if desired, 475 and 511 if desired.

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**As Per Claim 22**

Claim 22, as set forth in the Application, provides:

“22. A system for configuring a communications system having a CALL PULL-BACK mechanism, comprising:

5       **“means for populating a digital repository with preprogrammed software objects;**

10       **“means for selecting a subset of the preprogrammed software objects from the digital repository;**

**“means for customizing the subset of preprogrammed software objects with user defined parameters** so as to implement predetermined functions when executed by a processor;

15       **“means for mapping the predetermined functions** to corresponding operating system inputs; and

**“means for performing the predetermined functions** when initiated by the corresponding operating system inputs.” [Emphasis added.]

20

      With regard to the phrase **“means for populating a digital repository with preprogrammed software Objects,”** page 13, lines 3-4 states:

**“An OBJECT is a proven preprogrammed software construct which by itself, or when assembled with other OBJECTS, provides a desired functionality.”**

25

      Furthermore, page 12 lines 21-24, through page 13, line 1, state:

**“Figure 9 is a diagram clarifying the functioning of OBJECTS in the Object Tool Kit. An incoming call comes from the central office node or ATM switch 1. An optional voice switch 2 performs the numbering plan translations and is digitally integrated with the call processing server 3, commonly referred to as the voice server, where callers come under control of OBJECTS which may in turn call upon services from the other servers . . .”**

30

      Like any group of preprogrammed software constructs comprising an application residing  
 35 ~~on a server (in this case the call processing server 3), they are stored on a hard drive and encoded~~

in memory and the means for populating the digital repository of a server is widely known and used. They range from keyboard input to being downloaded from disk, memory, tape drive or

the network. What Applicant is disclosing is that Applicant is populating a digital repository with these proven, preprogrammed software constructs.

The phrase “**means for selecting a subset of the preprogrammed software Objects from the digital repository**” refers to the means or way of selecting a subset of the preprogrammed objects from the digital repository by first understanding what the customer wants to accomplish, and then selecting the objects from the objects described on pages 15-44. A good example of this may be better understood by reading the records kept of an actual customer’s configuration starting on page 45, line 1, and ending on page 51 line 11. It is most helpful to refer to figure 10 while doing so.

The phrase “**means for customizing the subset of preprogrammed software Objects with user defined parameters** so as to implement predetermined functions when executed by a processor” is very similar to the above paragraph in that it is first necessary to understand what the customer wants to accomplish and then selecting the objects from the objects described on pages 15-44. User defined parameters can be the actual verbiage spoken to the caller, menu structure, time of day control which may serve to play different greetings depending on time of day or day of week, changes in the intercept or operator, numbers to be out dialed, message waiting times etc. Some of this is typically accomplished through key board input, copying parameters from other parts of the application or by dialing in with a telephone and recording greetings, changing security codes, turning greetings on and off, setting message waiting times etc.

With regard to the phrase “**means for mapping the predetermined functions to corresponding operating system inputs,**” page 45, line 12, refers to figure 10 and states:

“The entry ‘M/B 2004,N,468’ 2 depicts a mailbox (M/B) whose first four numbers match the last four digits of the telephone number that receives callers.”



This is an industry standard way of triggering an application through the use of D.I.D., D.E.N.I.S. A.N.I. etc. Operating system input can be from the network rather than from a touch-tone keypad or a spoken word. Figure 10 refers to an intercept and this is an industry standard term for an operator and an operator is reached by pressing 0. Entering an extension number is just that and commonly understood especially when prompted by a greeting inviting the caller to enter the extension number now or prompting for a menu choice.

The phrase “**means for performing the predetermined functions** when initiated by the corresponding operating system inputs” refers to the way a call is handled by the mailboxes assigned to the objects described on pages 15-44 when populated by user defined parameters.

**As Per Claim 23**

Claim 23, as set forth in the Application, provides:

“23. **The system of claim 22**, wherein the predetermined functions are associated with a CALL PULL-BACK mechanism.” [Emphasis added.]

**The system of claim 22**, wherein the predetermined functions are associated with a CALL PULL-BACK mechanism is also disclosed under the heading of “OBJECT/Class of Service documentation” starting on page 15 and ending on page 44. All objects have predetermined functions but not all objects out dial thus employing the CALL PULL-BACK mechanism those that do out dial are Objects 1, 3, 4, 7, 11, 12, 15, 16, 17, 18, 21, 30, 31, 32, 33, 34, 35, 36, 37, and the subset of area code specific objects starting on page 31. For clarity, only one set of area code specific objects are shown, but, in reality, an identical set of area code specific objects exists for every area code. The only thing that changes is the area code. The area code specific objects that out dial are 50, 51, 52, 53, 54, 55, 56, 57, 455, 457, 458, 462, 463, 469, 472 if desired, 473, 474 if desired, 475 and 511 if desired.

The Examiner's Detailed Action refers to the "CALL PULL-BACK mechanism" as a "limitation" on page 2, paragraph 3. Not all objects in the current patent application out dial, thus employing CALL PULL-BACK. The CALL PULL-BACK mechanism was a patent application (09/266,724) at the time this patent application was filed. It later became the issued  
5 U.S. Patent, Serial No. 6,088,437, dated July 11, 2000.

The objects, which are the focus of this patent application, were first disclosed in the ABSTRACT OF THE DISCLOSURE of the issued U.S. Patent, Serial No. 6,088,437. The current patent application, entitled "A VIRTUAL VOICE/COMPANY/OFFICE NETWORK TOOL KIT, METHOD, AND COMPUTER PROGRAM PRODUCT," hereinafter referred to as  
10 "Application," goes into the objects in greater detail. A copy of said issued patent is included in the appendix of the current Application and is incorporated as though set forth in full herein.

Therefore, since sufficient description as to enable understanding by one skilled in the art in order to produce or make use of what the CALL PULL-BACK mechanism limitation represents has been inserted in the patent application, and, since further expanded description  
15 regarding Claims 1, 2, 11, 17, 22 and 23 has herein been submitted, Applicant respectfully requests the Examiner to withdraw this rejection.

2. Rejection Under 35 U.S.C. §103 (a), as failing to comply with the obviousness requirement:

20 "(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the  
25 invention was made."

The Examiner rejected Claims 1-13, 16-23, 26, and 28-31 under 35 U.S.C. § 103(a), as being unpatentable over Barnhouse, et al, USPN: 6,393,476 (hereinafter Barnhouse), in view of DEC (no author), 'DEC Computer Integrated Telephony (CIT) Applications Interface for VMS Programming', October 1991, Version 2.1 (hereinafter CIT-DEC)."

5 Applicant respectfully traverses this rejection.

Before Applicant addresses each claim rejected under 35 U.S.C. 103(a), Applicant feels it will help to clarify the pending Application, "A VIRTUAL VOICE/COMPANY/OFFICE NETWORK TOOL KIT, METHOD, AND COMPUTER PROGRAM PRODUCT," by setting forth the nature of the technology, its use, and that of each patent to which it is being compared.

10 This clarification is best accomplished by reviewing the following headings:

BACKGROUND OF THE INVENTION, page 2, line 1, through page 2, line 10; DISCUSSION OF THE BACKGROUND, page 2, line 12, through page 3, line 20; SUMMARY OF THE INVENTION, page 3, line 22, through page 5, line 7; Figure 10; and pages 45, line 1, through page 51, line 11, wherein it is disclosed that:

15 (a) The current patent application contains objects that serve as a tool kit for non-technical people who understand the business needs of a client;

(b) The objects also act as a common operating control for the various servers hosting and performing services for clients;

(c) The objects are used to deploy, create, manipulate, destroy and document client  
20 specific applications called "Virtual Environments" in a rapid and reliable manner;

(d) The Virtual Environments duplicate all or part of a client's communications and provide multi-media messaging, electronic document sharing and the storage of electronic records in secure hardened sites providing both voice and data disaster avoidance;

(e) These Virtual Environments also provide disaster avoidance by performing primary or secondary call answering and automatically redirecting traffic to locations such as key employees' homes or wherever else the called party is located during the course of normal business or in the event of an emergency;

5 (f) Depending on the business needs of a client, the objects comprising a Virtual Environment employ the CALL PULL-BACK technology as disclosed in the issued U.S. Patent, Serial No. 6,088,437, to accomplish voice call processing in the public switched telephone network (PSTN) and in a packet network environment;

(g) Virtual Environments provide for the voice and data networking of employees  
10 and others who may work outside the traditional office environment;

(h) Callers may access or called parties may be accessed by these Virtual Environments through the utilization of the PSTN or a packet network containing edge devices;

(i) Callers may access or called parties may be accessed by people utilizing telephones, personal computers or other related devices;

15 (j) Virtual Environments may contain structure in the form of menus and other plug in applications modules; and

(k) Virtual Environments may be packaged and marketed as software products allowing the purchaser to use the Web to access a Hub server and build or upgrade their own Virtual Environment.

20 As Per Claims 1-13, 16-23, 26, and 28-31, Re *Barnhouse, et al*, USPN 6,393,476

In *Barnhouse, et al*, a review of the BACKGROUND OF THE INVENTION column 1, lines 30 through 67, and column 2, lines 1 through 10, reveals the difficulties *Barnhouse, et al*, sought to overcome concerning proprietary software and firmware designed by the various

switch manufacturers who had their equipment as part of the Local Exchange Carriers and Competitive Local Exchange Carriers network.

*Barnhouse, et al*, sought to overcome the difficulties involved in implementing new services or modifications of existing services. When a carrier needed to develop and deploy a service or modification, the carrier first had to contact the various class 4 and 5 switch manufacturers and develop a business case. If enough of a business case could be developed, the various manufacturers had to agree to a standard and that standard had to be approved by various committees. That process could take a number of years. Each network contains different switch models from different manufactures. That fact requires careful development, testing and deployment of new software. The time frames involved are prohibitive and the problem of differentiating services by the competitors is a difficult one to overcome. *Barnhouse, et al*, USPN 6,393,476 discloses the solution to a traditional carrier problem of deploying a new service or modifying an existing service.

**Unlike *Barnhouse, et al*, the present Application does not provide ways for a carrier to deploy a service or modify an existing service. Applicant has no need to overcome legacy problems concerning proprietary software and firmware designed by various switch manufacturers, to build business cases or get an agreement to a standard in order to offer a new service or modify an existing one as Applicant has no class 4 or 5 switches.**

Applicant creates Virtual Environments which contain structure and plug-in applications modules. These Virtual Environments are custom end-user applications that provide call processing, multi-media messaging, electronic document sharing and the storage of electronic records in secure hardened sites providing both voice and data disaster avoidance.

Applicant performs primary or secondary call answering for individual clients and automatically redirect a client's traffic to locations such as key employees' homes or wherever else the called party is located during the course of normal business or in the event of an emergency.

5 Applicant enables the voice and data networking of a client's employees through the use of telephones, personal computers or other related devices. Applicant enables callers and called parties to be accessed through the use of telephones, personal computers or other related devices as well.

Because these are two very different endeavors, the objects used by Applicant and  
10 *Barnhouse, et al*, therefore would not be the same. Applicant and *Barnhouse, et al*, each use the generic term "object." However, the mere use of a generic term is not sufficient in and of itself to deny patentability. Applicant's application should be allowed because the issue is one of the functionality of the object and what is being created by its use. Unlike *Barnhouse, et al*,  
15 Applicant created specifically defined software objects that allow non-technical personnel who understand the business needs of a client to rapidly and reliably create, manipulate or destroy a given application.

Unlike *Barnhouse, et al*, Applicant's specifically defined software objects also act as a common operating control in that they issue commands to other servers invoking related applications. These applications provide structure allowing one to create a Virtual Environment,  
20 which may partially or totally mirror the applications, call processing and messaging of a client having a physical corporate location or being scattered across large geographic distances working from various locations such as a home or hotel. All that is necessary is access from any communications device to the network. These objects enable one to cost effectively create a

custom application for every client, thereby giving a huge advantage to the application creator over a competitor.

**DEC Computer Integrated Telephony (CIT) Applications Interface for VMS Programming.**

5 The objections of the Examiner on the basis of CIT-DEC are not applicable to the present Application. The CIT-DEC documentation clearly states that it is a manual for VMS applications programmers writing applications that use a link between a CIT-DEC server node and a PBX to provide users at a client node with computer integrated telephony facilities.

10 Applicant does not use PBXs, CIT-DEC server nodes or links to central office switches to provide users with computer integrated telephony services. In fact, Applicant offers no computer integrated telephony services in the traditional sense. The objects Applicant has written are preprogrammed software constructs designed to be used by non-programmers -- ordinary people who understand the business needs of the client and whose job it is to create, 15 manipulate or destroy a client specific application residing on a server in our Hub in a rapid and reliable manner.

**As Per Claim 1**

Claim 1, as set forth in the Application, provides:

20 "1. A method for configuring a communications system having a CALL PULL-BACK mechanism, comprising the steps of:

"**populating** a digital repository with preprogrammed software objects;

25 "**selecting** a subset of the preprogrammed software objects from the digital repository;

"**customizing** the subset of preprogrammed software objects with user defined parameters so as to implement predetermined functions when executed by a processor;

30 "**mapping** the predetermined functions to corresponding operating system inputs; and

“**performing** the predetermined functions when initiated by the corresponding operating system inputs.” [Emphasis added.]

5           The CALL PULL-BACK technology set forth in Claim 1 is the technology Applicant disclosed in the issued U.S. Patent, Serial No. 6,088,437, dated July 11, 2000. Neither *Barnhouse, et al*, USPN 6,393,476 nor CIT-DEC utilizes this technology. The use of the term CALL PULL-BACK is merely a descriptive title. The title in and of itself does not define the technology and the use of the title is not sufficient, in and of itself, to negate patentability.

10           The term “CALL PULL-BACK” was first used by Applicant many years ago, when Applicant was attempting to explain that technology to a technical friend. Applicant saw him struggling with the explanation but when he understood it he said, “Why don’t you just call it CALL PULL-BACK, everyone will understand that” and the name stuck. CALL PULL-BACK does not pull calls back. It is a screened whisper transfer capable of detecting and accurately  
15 identifying frequencies and cadences of switches it has not been tuned to. It is not an industry standard term and anyone else’s use of that term to accurately describe what Applicant is doing is just a fluke.

*Barnhouse, et al*, relates to “call processing,” which is the industry standard phrase having to do with the process of placing a telephone call. CALL PULL-BACK is not “call  
20 processing.” CALL PULL-BACK is unique; that is why Applicant was granted a patent.

*Barnhouse, et al*, is not doing CALL PULL-BACK because he worked for MCI and they are a large carrier utilizing SS7 signaling protocol. In order to have access to the SS7 network, you  
have to be a carrier or a collage. CALL PULL-BACK was developed for those who were not  
able to gain access to the SS7 network, and for those who needed a unique process not provided  
25 by SS7.



Therefore, as set forth above, since there is no equivalency between *Barnhouse, et al*, and/or CIT-DEC and the objects set forth in the Application, in mapping, and/or their use in the technology, and/or as set forth in the issued U.S. Patent, Serial No. 6,088,437, dated July 11, 2000, Applicant respectfully requests the Examiner to withdraw the rejection(s) under 35 USC §103 regarding Claim 1.

**As Per Claim 2**

Claim 2, as set forth in the Application, provides:

“2. **The method of Claim 1**, wherein the predetermined functions are associated with said CALL PULL-BACK mechanism.” [Emphasis added.]

As set forth above in the section “Re Claim 1,” on page 12, line 10, through page 16, line 4, incorporated herein by reference as though set forth in full, there is no equivalency between the predetermined functions and their association with said CALL PULL-BACK mechanism in the technology disclosed in this Application, and/or disclosed in the issued U.S. Patent, Serial No. 6,088,437, and/or that disclosed in *Barnhouse, et al*, USPN 6,393,476, and/or CIT-DEC.

Therefore, as set forth above, since there is no equivalency between *Barnhouse, et al*, and/or CIT-DEC and the objects set forth in the Application and/or as set forth in the issued U.S. Patent, Serial No. 6,088,437, dated July 11, 2000, Applicant respectfully requests the Examiner to withdraw the rejection(s) under 35 USC §103 regarding Claim 2.

**As Per Claim 3**

Claim 3, as set forth in the Application, provides:

“3. **The method of claim 1**, further comprising the step of:

“documenting the preprogrammed software objects including information about the predetermined functions.” [Emphasis added.]

As set forth above in the section “Re Claim 1,” on page 12, line 10, through page 16, line 4, incorporated herein by reference as though set forth in full, there is no equivalency between the predetermined functions and their association with said CALL PULL-BACK mechanism in the technology disclosed in this Application, and/or disclosed in the issued U.S. Patent, Serial No. 6,088,437, and that disclosed in *Barnhouse, et al*, USPN 6,393,476. Therefore the documentation or the method of obtaining that documentation would not be the same.

Therefore, as set forth above, since there is no equivalency between *Barnhouse, et al*, and/or CIT-DEC and the objects set forth in the Application and/or as set forth in the issued U.S. Patent, Serial No. 6,088,437, dated July 11, 2000, Applicant respectfully requests the Examiner to withdraw the rejection(s) under 35 USC §103 regarding Claim 3.

**As Per Claim 4**

Claim 4, as set forth in the Application, provides:

“4. **The method of Claim 3**, further comprising the step of:

“documenting the preprogrammed software Objects, after being customized, as drawings including the user defined parameters.” [Emphasis added.]

As set forth above in the section “Re Claim 1,” on page 12, line 10, through page 16, line 4,, incorporated herein by reference as though set forth in full, there is no equivalency between the preprogrammed software objects and their association with said CALL PULL-BACK mechanism in the technology disclosed in this Application, and/or disclosed in the issued U.S. Patent, Serial No. 6,088,437, and that disclosed in *Barnhouse, et al*, USPN 6,393,476.

Therefore, the documentation of those objects after being customized, as drawings including the user defined parameters, would not be the same as that disclosed in this patent application and that disclosed in *Barnhouse, et al*, USPN 6,393,476.

Therefore, as set forth above, since there is no equivalency between *Barnhouse, et al*, and/or CIT-DEC and the objects set forth in the Application and/or as set forth in the issued U.S. Patent, Serial No. 6,088,437, dated July 11, 2000, Applicant respectfully requests the Examiner to withdraw the rejection(s) under 35 USC §103 regarding Claim 4.

5        **As Per Claim 5**

Claim 5, as set forth in the Application, provides:

“5.    **The method of Claim 1**, further comprising the step of:

“packaging the preprogrammed software Objects as a consumer product.” [Emphasis added.]

10        As set forth above in the section “Re Claim 1,” on page 12, line 10, through page 16, line 4, incorporated herein by reference as though set forth in full, there is no equivalency between the preprogrammed software objects and their association with said CALL PULL-BACK mechanism in the technology disclosed in this Application, and/or disclosed in the issued U.S. Patent, Serial No. 6,088,437, and that disclosed in *Barnhouse, et al*, USPN 6,393,476.

15        Therefore, the packaging of the preprogrammed software objects as a consumer product would not be the same as that disclosed in this Application and that disclosed in *Barnhouse, et al*, USPN 6,393,476 or CIT-DEC.

Therefore, as set forth above, since there is no equivalency between *Barnhouse, et al*, and/or CIT-DEC and the objects set forth in the Application and/or as set forth in the issued U.S. Patent, Serial No. 6,088,437, dated July 11, 2000, Applicant respectfully requests the Examiner  
20        to withdraw the rejection(s) under 35 USC §103 regarding Claim 5.

**As Per Claim 6**

Claim 6, as set forth in the Application, provides:

“6. **The method of claim 5**, further comprising the step of:

“offering to sell packaged preprogrammed software objects to consumers.” [Emphasis added.]

5 It is arguable that this claim could be viewed as obvious in light of the rationale as set forth in the objections to Claim 5, but that rationale is inappropriate because this is more than just selling packaged preprogrammed software objects to consumers. Page 4, lines 12 through 17 of the Application state:

10 “While more common methods may be used to market these products, another attribute of the invention is that the virtual environments may be packaged and marketed as software applications, and sold in stores or over the Internet. A consumer purchasing the appropriate level of a virtual environment may then order the desired configuration or upgrade needed through a web site authorized to sell the products. A client may even design and/or construct their own virtual environment utilizing tools available through an  
15 authorized web site.”

Applicant asserts that we must take into consideration that this product offering is unique. Applicant and others have spent six years looking at possible competition in this market space and to date, despite intensive research, neither Applicant nor the others has been able to find a  
20 single direct competitor. This product provides a customized, customer specific, way of maintaining communications and the functionality needed by individuals, corporations and government entities in time of national emergency, even when their facilities and communications equipment have been damaged or destroyed. This is necessary and particularly appropriate given the threat of weapons of mass destruction being used on our own soil.  
25 Applicant’s Virtual Environments will enable the construction of an emergency communications system that will extend all the way down to and including the Emergency 911 systems.

Therefore, as set forth above, since there is no equivalency between *Barnhouse, et al*, and/or CIT-DEC and the objects set forth in the Application and/or as set forth in the issued U.S.

Patent, Serial No. 6,088,437, dated July 11, 2000, Applicant respectfully requests the Examiner to withdraw the rejection(s) under 35 USC §103 regarding Claim 6.

**As Per Claims 7 and 8**

Claim 7, as set forth in the Application, provides:

5           “7.     **The method of claim 5**, wherein said consumer product includes a computer readable medium.”

Claim 8, as set forth in the Application, provides:

10           “8.     **The method of claim 5**, wherein said consumer product further includes documentation about the preprogrammed software objects.”

Applicant asserts that we must take into consideration that this product offering is unique. Applicant and others have spent six years looking at possible competition in this market space and to date, despite intensive research, we have not been able to find a single direct competitor. This product provides a customized, customer specific, way of maintaining communications and the functionality needed by individuals, corporations and government entities in time of national emergency, even when their facilities and communications equipment have been damaged or destroyed. This is necessary and particularly appropriate given the threat of weapons of mass destruction being used on our own soil. Applicant’s Virtual Environments will enable the construction of an emergency communications system that will extend all the way down to and including the Emergency 911 systems. The fact that this product is being stored on a computer-readable medium and includes documentation is not sufficient to deny patentability. The Application should be granted based on the information and/or data that is being stored on a

25 computer-readable medium and accompanying documentation.

Therefore, as set forth above, since there is no equivalency between *Barnhouse, et al*, and/or CIT-DEC and the objects set forth in the Application and/or as set forth in the issued U.S.

Patent, Serial No. 6,088,437, dated July 11, 2000, Applicant respectfully requests the Examiner to withdraw the rejection(s) under 35 USC §103 regarding Claims 7 and 8.

**As Per Claim 9**

Claim 9, as set forth in the Application, provides:

5           “9.     **The method of claim 6**, wherein:

          “the offering to sell step comprises advertising for sale the consumer product over the Internet.” [Emphasis added.]

10           Applicant asserts that we must take into consideration that this product offering is unique. Applicant and others have spent six years looking at possible competition in this market space and to date, despite intensive research, we have not been able to find a single direct competitor. This product provides a customized, customer specific, way of maintaining communications and the functionality needed by individuals, corporations and government entities in time of national  
15           emergency, even when their facilities and communications equipment have been damaged or destroyed. This is necessary and particularly appropriate given the threat of weapons of mass destruction being used on our own soil. Applicant’s Virtual Environments will enable the construction of an emergency communications system that will extend all the way down to and including the Emergency 911 systems.

20           Therefore, as set forth above, since there is no equivalency between *Barnhouse, et al*, and/or CIT-DEC and the objects set forth in the Application and/or as set forth in the issued U.S. Patent, Serial No. 6,088,437, dated July 11, 2000, Applicant respectfully requests the Examiner  
to withdraw the rejection(s) under 35 USC §103 regarding Claim 9.

**As Per Claim 10**

25           Claim 10, as set forth in the Application, provides:

          “10.    A configurable communications system, comprising:

“a **digital repository** populated with preprogrammed software Objects configured to perform predetermined functions that are customizable by user defined parameters when executed by a processor;

5

“**input devices** configured to receive the user defined parameters;

“**the processors**; and

10

“a **computer readable** medium encoded with processor readable instructions that when executed by the processor implement,

“a **call processing** mechanism configured to perform the predetermined functions as customized by the user defined parameters.” [Emphasis added.]

15

As set forth above on page 12, line 10, through page 16, line 4, incorporated herein by reference as though set forth in full, there is no equivalency between the preprogrammed software objects configured to perform predetermined functions that are customizable by user defined parameters when executed by a processor and their association with said CALL PULL-  
20 BACK mechanism in the technology disclosed in this Application, and/or disclosed in the issued U.S. Patent, Serial No. 6,088,437, and that disclosed in *Barnhouse, et al*, USPN 6,393,476, and/or CIT-DEC. Therefore, neither *Barnhouse, et al*, nor CIT-DEC should negate the patentability of populating a digital repository with the objects disclosed in this Application.

Therefore, as set forth above, since there is no equivalency between *Barnhouse, et al*,  
25 and/or CIT-DEC and the objects set forth in the Application and/or as set forth in the issued U.S. Patent, Serial No. 6,088,437, dated July 11, 2000, Applicant respectfully requests the Examiner to withdraw the rejection(s) under 35 USC §103 regarding Claim 10.

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### As Per Claim 11

Claim 11, as set forth in the Application, provides:

30

“11. The system of claim 10, wherein the predetermined functions are associated with a CALL PULL-BACK mechanism.”

As set forth above on page 12, line 10, through page 16, line 4, incorporated herein by reference as though set forth in full, there is no equivalency between the predetermined functions and their association with said CALL PULL-BACK mechanism in the technology disclosed in this Application, and/or disclosed in the issued U.S. Patent, Serial No. 6,088,437, and that  
5 disclosed in *Barnhouse, et al*, USPN 6,393,476, and/or CIT-DEC.

**The method of Claim 1** is described in the explanation of figure 10 starting on page 45 of this application. Page 46, lines 15 through 18 state:

10 “When a mailbox such as (M/B) 83800,9979390,32 (see 4 in Figure 10) is reached by a caller selecting choice “0” which is the business hours intercept (the operator), the OBJECT obtains the appropriate external dial tone and dials the telephone number XXX-XXXX. Once the telephone number is dialed, CALL PULL-BACK is employed.”

Therefore, as set forth above, since there is no equivalency between *Barnhouse, et al*, and/or CIT-DEC and the objects set forth in the Application and/or as set forth in the issued U.S. Patent, Serial No. 6,088,437, dated July 11, 2000, Applicant respectfully requests the Examiner  
15 to withdraw the rejection(s) under 35 USC §103 regarding Claim 11.

**As Per Claim 12**

Claim 12, as set forth in the Application, provides:

20 “12. **The system of Claim 10, wherein:**

“the digital repository being a database hosted on at least one of a computer readable medium and a printed document.”

25 As set forth above on page 12, line 10, through page 16, line 4, incorporated herein by reference as though set forth in full, there is no equivalency between the preprogrammed software objects and their association with said CALL PULL-BACK mechanism in the technology disclosed in this Application, and/or disclosed in the issued U.S. Patent, Serial No. 6,088,437, and that disclosed in *Barnhouse, et al*, USPN 6,393,476, and/or in CIT-DEC.



Therefore, the documentation of those objects after being customized, as drawings including the user defined parameters, and the packaging of the preprogrammed software objects as a consumer product would not be the same as that disclosed in this Application and that disclosed in *Barnhouse, et al*, USPN 6,393,476 or CIT-DEC.

5 Further, Applicant asserts that we must take into consideration that this product offering is unique. Applicant and others have spent six years looking at possible competition in this market space and to date, despite intensive research, neither Applicant nor others has been able to find a single direct competitor. This product provides a customized, customer specific, way of maintaining communications and the functionality needed by individuals, corporations and  
10 government entities in time of national emergency, even when their facilities and communications equipment have been damaged or destroyed. This is necessary and particularly appropriate given the threat of weapons of mass destruction being used on our own soil. Applicant's Virtual Environments will enable the construction of an emergency communications system that will extend all the way down to and including the Emergency 911 systems. The fact  
15 that this product is being stored on a computer-readable medium and includes documentation is not sufficient to deny patentability. The Application should be granted based on the information and/or data that is being stored on a computer-readable medium and accompanying documentation.

Therefore, as set forth above, since there is no equivalency between *Barnhouse, et al*,  
20 and/or CIT-DEC and the objects set forth in the Application and/or as set forth in the issued U.S. Patent, Serial No. 6,088,437, dated July 11, 2000, Applicant respectfully requests the Examiner to withdraw the rejection(s) under 35 USC §103 regarding Claim 12.

**As Per Claim 13**

Claim 13, as set forth in the Application, provides:

“13. **The system of Claim 10, wherein:**

5 “the call processing mechanism being configured to provide multi-media messaging including at least one of voice mail, e-mail and facsimile.”

A review of the Examiner’s statement that *Barnhouse, et al*, discloses call processing with provision for multi-media messaging, reveals that the technology disclosed in this Application and that disclosed in *Barnhouse, et al*, USPN 6,393,476 are only superficially similar as set forth above on page 12, line 10, through page 16, line 4, incorporated herein by reference as though set forth in full. There is no equivalency between the preprogrammed software objects and their association with said CALL PULL-BACK mechanism in the technology disclosed in this Application, and/or disclosed in the issued U.S. Patent, Serial No. 6,088,437, and that disclosed in *Barnhouse, et al*, USPN 6,393,476, and/or CIT-DEC.

15 Therefore, the call processing mechanism being configured to provide multi-media messaging including at least one of voice mail, e-mail and facsimile would not be the same as that disclosed in this Application and that disclosed in *Barnhouse, et al*, USPN 6,393,476 and/or CIT-DEC.

Therefore, as set forth above, since there is no equivalency between *Barnhouse, et al*, and/or CIT-DEC and the objects set forth in the Application and/or as set forth in the issued U.S. Patent, Serial No. 6,088,437, dated July 11, 2000, Applicant respectfully requests the Examiner

20 to withdraw the rejection(s) under 35 USC §103 regarding Claim 13.

**As Per Claim 16**

Claim 16, as set forth in the Application, provides:

“16. **A computer program product, comprising:**

25 “a computer storage medium and a computer program code mechanism embedded in the computer storage medium for causing a processor to implement a call processing system, the computer program code mechanism comprising:

“a first computer code device configured to create a library of preprogrammed software objects capable of performing predetermined functions.

5 “a second computer code device configured to store the library of preprogrammed software objects in a digital repository;

10 “a third computer code device configured to select a subset of preprogrammed software objects from the digital repository based on a preselected portion of the predetermined functions;

“a fourth computer code device configured to customized the selected preprogrammed software objects based on user defined parameters; and

15 “a fifth computer code device configured to process calls based on the selected programmed software objects as customized with the user defined parameters.” [Emphasis added.]

As set forth above in the sections on page 12, line 10, through page 16, line 16, incorporated herein by reference as though set forth in full, there is no equivalency between the predetermined functions and their association with said CALL PULL-BACK mechanism in the technology disclosed in this Application, and/or disclosed in the issued U.S. Patent, Serial No. 6,088,437, and that disclosed in *Barnhouse, et al*, USPN 6,393,476, and/or CIT-DEC.

25 Therefore, as set forth above, since there is no equivalency between *Barnhouse, et al*, and/or CIT-DEC and the objects set forth in the Application and/or as set forth in the issued U.S. Patent, Serial No. 6,088,437, dated July 11, 2000, Applicant respectfully requests the Examiner to withdraw the rejection(s) under 35 USC §103 regarding Claim 16.

**As Per Claim 17**

Claim 17, as set forth in the Application, provides:

30 “17. **The computer program product of Claim 16**, wherein the predetermined functions are associated with a CALL PULL-BACK mechanism.” [Emphasis added.]

As set forth above, on page 12, line 10, through page 16, line 4, incorporated herein by reference as though set forth in full, there is no equivalency between the predetermined functions

and their association with said CALL PULL-BACK mechanism in the technology disclosed in this Application, and/or disclosed in the issued U.S. Patent, Serial No. 6,088,437, and that disclosed in *Barnhouse, et al*, USPN 6,393,476, and/or CIT-DEC.

Therefore, as set forth above, since there is no equivalency between *Barnhouse, et al*, and/or CIT-DEC and the objects set forth in the Application and/or as set forth in the issued U.S. Patent, Serial No. 6,088,437, dated July 11, 2000, Applicant respectfully requests the Examiner to withdraw the rejection(s) under 35 USC §103 regarding Claim 17.

**As Per Claim 18**

Claim 18, as set forth in the Application, provides:

“18. **The computer program product for claim 16**, wherein the digital repository comprises a database.” [Emphasis added.]

As set forth above, on page 12, line 10, through page 16, line 4, incorporated herein by reference as though set forth in full, there is no equivalency between the predetermined functions and their association with said CALL PULL-BACK mechanism in the technology disclosed in this Application, and/or disclosed in the issued U.S. Patent, Serial No. 6,088,437, and that disclosed in *Barnhouse, et al*, USPN 6,393,476, and/or CIT-DEC. Many computer program products make use of one or more databases. Patentability cannot be determined on the basis of whether a computer program product uses a database. Patentability must be determined on the basis of what the computer program products accomplish through the use of databases.

Therefore, as set forth above, since there is no equivalency between *Barnhouse, et al*, and/or CIT-DEC and the objects set forth in the Application and/or as set forth in the issued U.S. Patent, Serial No. 6,088,437, dated July 11, 2000, Applicant respectfully requests the Examiner to withdraw the rejection(s) under 35 USC §103 regarding Claim 18.

**As Per Claim 19**

Claim 19, as set forth in the Application, provides:

“19. **The computer program product of claim 18**, wherein said database being hosted on at least one of a computer readable medium and a printed document.” [Emphasis added.]

5 As set forth above, on page 12, line 10, through page 16, line 4, incorporated herein by reference as though set forth in full, there is no equivalency between the predetermined functions and their association with said CALL PULL-BACK mechanism in the technology disclosed in this Application, and/or disclosed in the issued U.S. Patent, Serial No. 6,088,437, and that  
10 disclosed in *Barnhouse, et al*, USPN 6,393,476, and/or CIT-DEC. Many computer program products make use of one or more databases. Many computer program products host their databases on computer readable medium and printed documents. Patentability cannot be determined on the basis of whether a computer program product uses computer readable medium and printed documents. Patentability must be determined on the basis of what the computer  
15 program products accomplish through the use of computer readable medium and printed documents.

Therefore, as set forth above, since there is no equivalency between *Barnhouse, et al*, and/or CIT-DEC and the objects set forth in the Application and/or as set forth in the issued U.S. Patent, Serial No. 6,088,437, dated July 11, 2000, Applicant respectfully requests the Examiner  
20 to withdraw the rejection(s) under 35 USC §103 regarding Claim 19.

**As Per Claim 20**

Claim 20, as set forth in the Application, provides:

“20. **The computer program product of claim 16**, wherein said predetermined functions being a user customized call pull-back operation.” [Emphasis added.]

25 As set forth above, on page 12, line 10, through page 16, line 4, incorporated herein by reference as though set forth in full, there is no equivalency between the predetermined functions

and their association with said CALL PULL-BACK mechanism in the technology disclosed in this Application, and/or disclosed in the issued U.S. Patent, Serial No. 6,088,437, and that disclosed in *Barnhouse, et al*, USPN 6,393,476, and/or CIT-DEC.

Therefore, as set forth above, since there is no equivalency between *Barnhouse, et al*, and/or CIT-DEC and the objects set forth in the Application and/or as set forth in the issued U.S. Patent, Serial No. 6,088,437, dated July 11, 2000, Applicant respectfully requests the Examiner to withdraw the rejection(s) under 35 USC §103 regarding Claim 20.

**As Per Claim 21**

Claim 21, as set forth in the Application, provides:

“21. **The computer program product of claim 16**, wherein said user defined parameters being communication system attributes.” [Emphasis added.]

As detailed in this document, the selected subset of objects that make up a client’s configuration are customized with user-defined parameters so as to implement predetermined functions when executed by a processor. As set forth above in the sections on page 12, line 10, through page 16, line 16, incorporated herein by reference as though set forth in full, there is no equivalency between the objects and their association with said CALL PULL-BACK mechanism in the technology disclosed in this Application, and/or disclosed in the issued U.S. Patent, Serial No. 6,088,437, and that disclosed in *Barnhouse, et al*, USPN 6,393,476, and/or CIT-DEC.

Therefore, neither *Barnhouse, et al*, nor CIT-DEC should negate patentability of said user defined parameters and the fact that they are communication system attributes, as disclosed in this Application.

Therefore, as set forth above, since there is no equivalency between *Barnhouse, et al*, and/or CIT-DEC and the objects set forth in the Application and/or as set forth in the issued U.S.

Patent, Serial No. 6,088,437, dated July 11, 2000, Applicant respectfully requests the Examiner to withdraw the rejection(s) under 35 USC §103 regarding Claim 21.

**As Per Claim 22**

Claim 22, as set forth in the Application, provides:

5           “22. A system for configuring a communications system having a CALL PULL-  
BACK mechanism, comprising:

          “**means** for populating a digital repository with preprogrammed software objects;

10           “**means** for selecting a subset of the preprogrammed software objects from the digital  
repository;

          “**means** for customizing the subset of preprogrammed software objects with user defined  
parameters so as to implement predetermined functions when executed by a processor;

15           “**means** for mapping the predetermined functions to corresponding operating system  
inputs; and

20           “**means** for performing the predetermined functions when initiated by the corresponding  
operating system inputs.” [Emphasis added.]

As set forth above on page 12, line 10, through page 16, line 4, incorporated herein by  
reference as though set forth in full, there is no equivalency between the predetermined functions  
and their association with said CALL PULL-BACK mechanism in the technology disclosed in  
25 this Application, and/or disclosed in the issued U.S. Patent, Serial No. 6,088,437, and that  
disclosed in *Barnhouse, et al*, USPN 6,393,476 and/or CIT-DEC.

The CALL PULL-BACK technology mentioned here is the technology Applicant  
disclosed in the issued U.S. Patent, Serial No. 6,088,437, dated July 11, 2000. Neither  
*Barnhouse, et al*, USPN 6,393,476, nor CIT-DEC utilizes this technology. The use of the  
30 descriptive title “CALL PULL-BACK” in and of itself cannot be determinative of patentability.

Therefore, as set forth above, since there is no equivalency between *Barnhouse, et al*,  
and/or CIT-DEC and the objects set forth in the Application and/or as set forth in the issued U.S.

Patent, Serial No. 6,088,437, dated July 11, 2000, Applicant respectfully requests the Examiner to withdraw the rejection(s) under 35 USC §103 regarding Claim 22.

**As Per Claim 23**

Claim 23, as set forth in the Application, provides:

5           “23.   **The system of claim 22**, wherein the predetermined functions are associated with a CALL PULL-BACK mechanism.” [Emphasis added.]

As set forth above on page 12, line 10, through page 16, line 4, incorporated herein by reference as though set forth in full, there is no equivalency between the predetermined functions  
10 and their association with said CALL PULL-BACK mechanism in the technology disclosed in this Application, and/or disclosed in the issued U.S. Patent, Serial No. 6,088,437, and that disclosed in *Barnhouse, et al*, USPN 6,393,476 and/or CIT-DEC.

The CALL PULL-BACK technology mentioned here is the technology Applicant disclosed in the issued U.S. Patent, Serial No. 6,088,437, dated July 11, 2000. Neither  
15 *Barnhouse, et al*, USPN 6,393,476, nor CIT-DEC utilizes this technology. The use of the descriptive title “CALL PULL-BACK” in and of itself cannot be determinative of patentability.

Therefore, as set forth above, since there is no equivalency between *Barnhouse, et al*, and/or CIT-DEC and the objects set forth in the Application and/or as set forth in the issued U.S. Patent, Serial No. 6,088,437, dated July 11, 2000, Applicant respectfully requests the Examiner  
20 to withdraw the rejection(s) under 35 USC §103 regarding Claim 23.

**As Per Claim 26**

Claim 26, as set forth in the Application, provides:

“26.   **The system of Claim 22**, further comprising:

25           “**means for locking up an allocation of bandwidth** needed in a virtual point to point connection during call set.” [Emphasis added.]



As set forth above on page 12, line 10, through page 16, line 4, incorporated herein by reference as though set forth in full, there is no equivalency between the predetermined functions and their association with said CALL PULL-BACK mechanism in the technology disclosed in this Application, and/or disclosed in the issued U.S. Patent, Serial No. 6,088,437, and that  
5 disclosed in *Barnhouse, et al*, USPN 6,393,476 and/or CIT-DEC. Any similarity is only superficial and is not sufficient to affect patentability.

Therefore, as set forth above, since there is no equivalency between *Barnhouse, et al*, and/or CIT-DEC and the objects set forth in the Application and/or as set forth in the issued U.S. Patent, Serial No. 6,088,437, dated July 11, 2000, Applicant respectfully requests the Examiner  
10 to withdraw the rejection(s) under 35 USC §103 regarding Claim 26.

**As Per Claim 28**

Claim 28, as set forth in the Application, provides:

“28. **The system of claim 22**, further comprising:

15 “**means** for controlling numbering and forwarding from digital transport edge devices placed on or near a customer’ s premises.” [Emphasis added.]

The Examiner’s objection to Claim 28 states:

20 “**As per claim 28**, Barnhouse discloses control on numbering (e.g. *look up for a number* col. 17-26) and forwarding (e.g. col. 15, lines 47-64; col. 17, lines 20-29) from edges devices near or at customer premises (Note: the managed objects as disclosed by Barnhouse telephony call control system implies the monitoring of call number and forwarding typical in a network management system.”

25 After careful review, Applicant saw no mention of edge devices located anywhere, much less on or near a customer’s premises, and that is because *Barnhouse, et al*, and Applicant are doing two totally different things. Applicant is using edge devices on or near a customer’s premises because Applicant is supplying a custom Virtual Environment to a client who is an end

user, and is not creating a solution to a carrier's problem of deploying a new service or modifying an existing service.

Therefore, as set forth above, since there is no equivalency between *Barnhouse, et al*, and/or CIT-DEC and the objects set forth in the Application and/or as set forth in the issued U.S. Patent, Serial No. 6,088,437, dated July 11, 2000, Applicant respectfully requests the Examiner to withdraw the rejection(s) under 35 USC §103 regarding Claim 28.

**As Per Claim 29**

Claim 29, as set forth in the Application, provides:

“29. The system of Claim 22, further comprising:

“means for record keeping for each client's configuration of the subset of preprogrammed software Objects.” [Emphasis added.]

The Examiner's objection to Claim 29 states:

“As per claim 29, Barnhouse discloses record keeping of client's configuration of the subset of preprogrammed objects (e.g. col. 13, lines 23-47; col. 13 lines 18-64 -- Note: the configuring or modeling of objects using tools being stored in the repository for reuse is equivalent to record keeping of each developer's configuration instance).”

The configuring or modeling of objects has no equivalency to the record keeping of an individual client's configuration. *Barnhouse, et al*, doesn't keep records of an end user client's configuration because he has no end user clients. Applicant supplies Virtual Environments to individuals, businesses and the government. *Barnhouse, et al*, supplies a solution to a carrier problem of deploying a new service or modifying an existing service.

Therefore, as set forth above, since there is no equivalency between *Barnhouse, et al*, and/or CIT-DEC and the objects set forth in the Application and/or as set forth in the issued U.S. Patent, Serial No. 6,088,437, dated July 11, 2000, Applicant respectfully requests the Examiner to withdraw the rejection(s) under 35 USC §103 regarding Claim 29.

**As Per Claim 30**

Claim 30, as set forth in the Application, provides:

“30. **The system of claim 22**, further comprising:

5 “**means** for documenting spoken verbiage and member information used in customizing the subset of preprogrammed software Objects.” [Emphasis added.]

The Examiner’s objection to Claim 29 states:

10 “**As per claim 30**, Barnhouse does not disclose documenting spoken verbiage or member information in the configuration environment but teaches the SLEE for authoring the preprogrammed objects (e.g. col. 7 lines 33-35). Official notice is taken that in a software developing environment with configuration as suggested by both Barnhouse and CIT-DEC, the developer information as well as developer’s comments being recorded for being part of the configuration management was a known concept in the art at the time of  
15 the invention. Hence it would have been obvious for one of ordinary skill in the art at the time the invention was made to include Barnhouse’s system (with the teachings by CIT-DED [sic]) the developer’s comments and personal identification because these would enable tracking the author to the configuration state of the preprogrammed objects, thereby enhance code modifications control or integrity checking.”

20 The documentation of the spoken verbiage and member information used in customizing the subset of preprogrammed software objects that Applicant is disclosing in this Application has nothing to do with the developer’s information or comments. In looking at figure 10 of this Application and the XYZ Company Greetings at page 47, line 10, through page 51, line 11,  
25 demonstrates that Applicant is referring to the verbiage spoken to the caller of an actual end user’s Virtual Environment.

*Barnhouse, et al*, supplies a solution to a carrier’s problem of deploying a new service or modifying an existing service. Applicant supplies Virtual Environments to individuals, businesses and the government. CIT-DEC is for VMS applications programmers writing  
30 applications that use a link between a CIT-DEC server node and a PBX to provide users at a client node with computer integrated telephony facilities. *Barnhouse, et al*, and Applicant are not doing the same thing.

Therefore, as set forth above, since there is no equivalency between *Barnhouse, et al*, and/or CIT-DEC and the objects set forth in the Application and/or as set forth in the issued U.S. Patent, Serial No. 6,088,437, dated July 11, 2000, Applicant respectfully requests the Examiner to withdraw the rejection(s) under 35 USC §103 regarding Claim 30.

5           **As Per Claim 31**

Claim 31, as set forth in the Application, provides:

“31.   **The system of claim 22**, further comprising:

10           “means for documenting the subset of preprogrammed Objects used in the system.”  
[Emphasis added.]

The Examiner’s objection to Claim 29 states:

“**As per claim 31**, refer to claim 3 for corresponding rejection.”

15           As set forth above on page 12, line 10, through page 16, line 4, incorporated herein by reference as though set forth in full, there is no equivalency between the preprogrammed software objects, including information about the subset of preprogrammed objects disclosed in this Application, and/or disclosed in the issued U.S. Patent, Serial No. 6,088,437, and that disclosed in *Barnhouse, et al*, USPN 6,393,476. Therefore the documentation or the method of obtaining that documentation would not be the same.

20           An examination of figure 10 shows the means used for documenting the subset of preprogrammed objects used in an actual end user client’s configuration. *Barnhouse, et al*, does not do that because he has no end user client configurations. Unlike Applicant, *Barnhouse* supplies a solution to a carrier’s problem of deploying a new service or modifying an existing service.

25           Therefore, as set forth above, since there is no equivalency between *Barnhouse, et al*, and/or CIT-DEC and the objects set forth in the Application and/or as set forth in the issued U.S.

Patent, Serial No. 6,088,437, dated July 11, 2000, Applicant respectfully requests the Examiner to withdraw the rejection(s) under 35 USC §103 regarding Claim 31.

3. Rejection Under 35 U.S.C. §103 (a), as failing to comply with the obviousness requirement:

5           “(a) A patent may not be obtained though the invention is not identically  
disclosed or described as set forth in section 102 of this title, if the differences  
between the subject matter sought to be patented and the prior art are such that the  
subject matter as a whole would have been obvious at the time the invention was  
10           made to a person having ordinary skill in the art to which said subject matter  
pertains. Patentability shall not be negated by the manner in which the  
invention was made.”

The Examiner rejected Claims 14-15 under 35 U.S.C. § 103(a), “as being unpatentable  
over Barnhouse, et al, USPN: 6,393,476 , in view of DEC (no author), ‘DEC Computer  
15 Integrated Telephony (CIT) Applications Interface for VMS Programming’, as applied to claim  
10, and further in view of Underwood, USPubN: 2003/0016675 (hereinafter Underwood).”

Applicant respectfully traverses this rejection.

*Underwood* is not sufficient grounds to deny patentability to Applicant. *Underwood*  
discloses an **improved** switching network based on an ATM meshed switching network used in  
20 conjunction with a Sonet ring. The utilization of an ATM meshed switching network used in  
conjunction with a Sonet ring is not new technology; it has been around for years. *Underwood*  
simply discloses a method of increasing SONET efficiency, thereby increasing transport  
efficiency.

In light of that which is disclosed in the Application and this document, notably page 12,  
25 line 6, through page 13, line 19, any rejection of claim 14 or 15 as being unpatentable over  
*Underwood* is equivalent to saying that a claim cannot be patented over another patent because  
that claim stated it was using a more efficient trunk, personal computer or a telephone. The

determination of patentability cannot be based on the fact that the claim utilized a certain form of transport like ATM or a SONET ring; that's just standard telephony. The determination of patentability must be based on what is accomplished using that form of transport.

**As Per Claim 14**

5 Claim 14, as set forth in the Application, provides:

“14. **The system of Claim 10**, further comprising:

“a communication interface for receiving data over at least one of a Sonet Ring network and a meshed network.” [Emphasis added.]

10 The Examiner rejected Claim 14 on the following grounds:

15 “**As per claim 14**, Barnhouse does not disclose a communication for receiving data over a Sonet ring and a meshed network. The communication over the network involving a Sonet Ring or a meshed network is not unknown to the art at the time the invention was made. Underwood, in a method to implement telephone switching and call processing analogous to Barnhouse, discloses communication over a Sonet Ring (e.g. paragraph 0004; Fig. 8) and a meshed network (e.g. paragraph 0025; Fig. 1-2). It would have been obvious for one of ordinary skill in the art at the time the invention was made to provide the functionalities of the call processing system as taught by Barnhouse with the capabilities to communicate over a Sonet Ring or a meshed switching network as taught by Underwood, because this would extend the call processing system by Barnhouse so as to be able to interconnect optical network as well as non-hierarchical or meshed network.”

25 Applicant respectfully traverses this rejection.

The above Examiner's rejection does not state the grounds for rejection under CIT-DEC.

*Barnhouse* doesn't disclose a method for receiving data over a Sonet Ring and a meshed network. *Underwood* only discloses a method of increasing SONET efficiency thereby creating a more effective means of transport. Neither CIT-DEC, *Barnhouse* nor *Underwood* is doing anything even remotely like what Applicant is doing. Consequently, there is no legitimate basis to find Claim 14 unpatentable over CIT-DEC, *Barnhouse* or *Underwood*.

Therefore, as set forth above, since there is no equivalency between *Barnhouse, et al*, and/or CIT-DEC, and/or *Underwood*, and the objects set forth in the Application and/or as set forth in the issued U.S. Patent, Serial No. 6,088,437, dated July 11, 2000, Applicant respectfully requests the Examiner to withdraw the rejection(s) under 35 USC §103 regarding Claim 14.

5           **As Per Claim 15**

Claim 15, as set forth in the Application, provides:

“15.   **The system of claim 14**, wherein at least one of a Sonet Ring network and a meshed network being configured with ATM as a transport for packetized traffic.” [Emphasis added.]

10           The Examiner rejected Claim 15 on the following grounds:

15           “**As per claim 15**, again it is *Underwood* to come up with configuring the mesh and Sonet Ring network with ATM as a transport for packet traffic (e.g. Fig. 1,2). And the motivation for *Barnhouse* to obviously provide such ATM based transport for network communications as suggested by *Underwood* would be the same as that used in the rationale set forth in claim 14 above, since ATM is known to be more compatible with mesh network and Sonet-based links.”

20           *Underwood* is not sufficient grounds to deny patentability to Applicant. *Underwood* discloses an **improved** switching network based on an ATM meshed switching network used in conjunction with a Sonet ring. The utilization of an ATM meshed switching network used in conjunction with a Sonet ring is not new technology; it has been around for years. *Underwood* simply discloses a method of increasing SONET efficiency, thereby increasing transport  
25 efficiency.

In light of that which is disclosed in the Application and this document, notably page 12, line 6, through page 13, line 19, any rejection of claim 15 as being unpatentable over *Underwood* is equivalent to saying that a claim cannot be patented over another patent because that claim stated it was using a more efficient trunk, personal computer or a telephone. The determination  
30 of patentability cannot be based on the fact that the claim utilized a certain form of transport like

ATM or a SONET ring; that's just standard telephony. The determination of patentability must be based on what is accomplished using that form of transport.

Therefore, as set forth above, since there is no equivalency between *Barnhouse, et al*, and/or CIT-DEC, and/or *Underwood*, and the objects set forth in the Application and/or as set forth in the issued U.S. Patent, Serial No. 6,088,437, dated July 11, 2000, Applicant respectfully requests the Examiner to withdraw the rejection(s) under 35 USC §103 regarding Claim 15.

4. Rejection Under 35 U.S.C. §103 (a), as failing to comply with the obviousness requirement:

“(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.”

The Examiner rejected Claims 24-25, and 27 under 35 U.S.C. § 103(a), “as being unpatentable over *Barnhouse, et al*, USPN: 6,393,476 , in view of CIT-DEC (no author), ‘DEC Computer Integrated Telephony (CIT) Applications Interface for VMS Programming’, as applied to claim 22, and further in view of *Garner*, USPN: 6,411,806 ( hereinafter *Garner*).”

Applicant respectfully traverses this rejection.

*Garner*, USPN: 6,411, 806, at column 1, lines 37-43 Technical Field, states:

“The present invention relates generally to a satellite trunked radio service for satellite communication, and more particularly, to a virtual network configuration and management system for satellite communication utilizing a shared satellite demand period circuit associated with private voice networks.”

**As Per Claims 24 and 25**

Claim 24, as set forth in the Application, provides:

“24. **The system of claim 22**, further comprising:



“means for disaster resistant communications.” [Emphasis added.]  
Claim 25, as set forth in the Application, provides:

5       “25.   **The system of claim 22** further comprising:

          “means for transporting traffic between nodes when an outbound footprint allowing users  
node access as a local call is exceeded.” [Emphasis added.]

10       The Examiner rejected Claims 24-25, and 27 “under 35 U.S.C. 103(a) as being  
unpatentable over Barnhouse et al., USPN: 6,393,476, in view of CIT-DEC (no author), ‘DEC  
Computer Integrated Telephony (CIT) Applications Interface for VMS Programming’, as applied  
to claim 22, and further in view of Garner, USPN: 6,411,806 (hereinafter Garner).”

Applicant respectfully traverses this rejection.

15       The Examiner’s objections to claims 24 and 25 stated:

**“As per claims 24 and 25**, Barnhouse does not specify disaster resistant communications  
nor does Barnhouse disclose transporting between traffic when an outbound footprint is  
exceeded. Official notice is taken that at the time of the invention the  
telecommunications technology has evolved to include wireless communications and this  
20       was a known concept in the telephone industry. Further, Garner, in a system to configure  
mobile communications between users using routing techniques analogous to the call  
processing and intelligent switching system by Barnhouse (see Barnhouse: Abstract,  
Background of invention; Fig. 5), discloses a fault tolerant a computer network with fault  
tolerant features and outbound signaling channels (e.g. col. 5, lines 15-20; fig. 5; col. 8,  
25       lines 43-48). It would have been obvious for one of ordinary skill in the art at the time  
the invention was made to provide disaster resistant features and the outbound rerouting  
as suggested by Garner and well known concepts to Barnhouse intelligent call routing  
and switching network. The motivation is that these two features would further enhance  
the sturdiness of the system by Barnhouse to provide intelligent processing of telephony  
30       connection and data transmission request, more particularly when such processing is  
extended to cover wireless communications as suggested by Garner.”

          Claim 24 refers to the ability of a Virtual Environment to provide the services necessary  
for a client to remain functional in the event of a manmade or natural disaster. In the  
35       Application, in the section entitled “Discussion of the Background,” found at page 2, line 12  
through page 3, line 20, it is described in detail. Page 12, lines 13-21 are particularly pertinent.

Claim 24 has nothing to do with wireless communications, other than the fact that a caller or called party could use a cell phone to access or be accessed by the network. Claim 24 has nothing to do with satellite trunked radio services for satellite communications, nor a virtual network configuration and management system for satellite communication utilizing a shared satellite demand period circuit associated with private voice networks.

As stated previously, *Barnhouse, et al*, discloses the solution to a traditional carrier's problem of deploying a new service or modifying an existing service. Claim 24 addresses telephony disaster avoidance for end user clients such as an individual, businesses or government entities.

Claim 25 refers to a means for transporting traffic between nodes when an outbound footprint allowing users node access as a local call is exceeded. See Fig. 6 and the detailed explanation of that figure, located on page 11, lines 10-23, and Fig. 8 and the detailed explanation of that figure, located on page 12, lines 8-20. This has nothing to do with satellite trunked radio services for satellite communications, nor a virtual network configuration and management system for satellite communication utilizing a shared satellite demand period circuit associated with private voice networks.

*Barnhouse, et al*, has provided a way of solving a carrier's problem of deploying a new service or modifying an existing service. In contrast to Applicant, *Barnhouse, et al*, does not disclose ways of making all inbound and outbound calls in a LATA local calls.

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Therefore, as set forth above, since there is no equivalency between *Barnhouse, et al*, and/or CIT-DEC, and/or *Garner*, and the objects set forth in the Application and/or as set forth in the issued U.S. Patent, Serial No. 6,088,437, dated July 11, 2000, Applicant respectfully requests the Examiner to withdraw the rejection(s) under 35 USC §103 regarding Claims 24 and 25.

**Re Claim 27**

Claim 27, as set forth in the Application, provides:

“27. The system of claim 22, further comprising:

5 “means for tearing down an ATM cloud providing a virtual point to point connection after determining that a call terminates on a same concentrator as the call was originated on.”

The examiner’s objections to claim 27 state:

10 “As per claim 27, Barnhouse discloses migration to an ATM communications (e.g. col.9, lines 47-63) but does not teach tearing down of a ATM cloud as claimed whereas Garner teaches remote switching with an asynchronous mode (e.g. col. 37, lines 60-67). At the time of the invention, official notice is taken that it was a well-known concept that a connection is determined to be invalid if it is being determined to end on the same point from which it originates. Hence, in the event that Barnhouse establishes  
15 an ATM network as suggested by Garner from above to cover mobile communications call processing ( re claim 24-25), it would have been obvious for one of ordinary skill in the art at the time the invention was made to invalidate any wireless call that would end on the same concentrator it originates from, and take away the ATM connection related to such wireless cloud connection as suggested by known concept and by Garner  
20 teachings and apply this to Barnhouse’s method because this would enhance optimization of network resources or bandwidth allocation for ATM-based call processing by Barnhouse, more particularly when such processing is extended to cover wireless communications in the ATM network as suggested by Garner.”

25 Claim 27 is detailed in Fig. 3 and under the heading of the DESCRIPTION OF THE PREFERRED EMBODIMENTS, at page 8, lines 21, through page 10, line 13. As can be seen in Fig. 3, this is not a case of a connection being determined to be invalid if it is being determined to end on the same endpoint from which it originates. The caller first reaches the application hosted on a server in the Hub. Upon reaching the Hub, if a caller selects a choice, which  
30 terminates on the same concentrator that the call originated from, the talk path is completed in the local concentrator and the virtual point-to-point connection in the ATM cloud is torn down and the bandwidth is then relocated.

Therefore, as set forth above, since there is no equivalency between *Barnhouse, et al*, and/or CIT-DEC, and/or *Garner*, and the objects set forth in the Application and/or as set forth in

the issued U.S. Patent, Serial No. 6,088,437, dated July 11, 2000, Applicant respectfully requests the Examiner to withdraw the rejection(s) under 35 USC §103 regarding Claim 27.

**Re Examiner's Conclusion**

5. Prior art made of record and not relied upon by the Examiner included:

5 “US Pat No. 6,389,124 to Schnarel et. al., disclosing mobile device configuring interface and communication state.

US Pat No. 5,867,495 to Elliott et. al., disclosing user profile and telephony routing configuration environment.”

10

*Schnarel, et al*, US Pat No. 6,389,124 B1, in the ABSTRACT page 1, discloses a user interface for a screen phone or other telephony device such as a modem, answering machine or PDA. While a user may chose to utilize a screen phone commonly called a soft phone or other device to access a virtual environment application or to speak with another user, that is no more material to the current patent application than a user who chooses to use a home phone or a cell phone. The choice of how a user accesses our system does not affect the nature of the system itself.

The Application discloses a communications network that allows for the creation and hosting of client specific applications. This network is designed to allow communications from any communications device to any communications device. Applicant is not creating a screen phone, soft phone or other device. Consequently, a screen phone, soft phone or other device user interface does not conflict in any way with the current patent application.

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*Elliott, et. al*, US Pat No. 5,867,495 column 1, under the heading of FIELD OF THE INVENTION, relates to the marriage of the internet with telephony systems, and more specifically, to a system, method and article of manufacture for using the Internet as the

25

communication backbone of a communication system architecture while maintaining a rich array of call processing features.

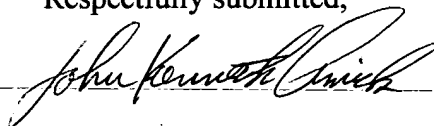
The present invention relates to the interconnection of a communication network,  
5 including telephony capability with the Internet. The Internet has increasingly become the communication network of choice for the consumer market place. Recently, software companies have begun to investigate the transfer of telephone calls across the Internet. However, the system features that users demand of normal call processing are considered essential for call processing on the Internet. Today, these features are not available on the Internet.

10 *Elliott, et al*, discloses a way of interconnecting a communications network --typically a switched circuit communications network including telephony capability -- with the Internet, involving a system, method and article of manufacture. While superficially similar to the voice call processing portion of the Application, a review of page 11, line 18, through page 13, line 19, particularly with regard to items (a) through page (k), draws a clear distinction.

15  
CONCLUSION

In light of the reasons provided, Applicant submits that the Application is in condition for allowance, for which early action is requested.

Respectfully submitted,

20 

John Kenneth Amick  
Applicant

JKA:mmk

25 Encs.

**ORIGINAL**

8006-0019-13

TITLE OF THE INVENTION

#12  
mark-up

A VIRTUAL VOICE/COMPANY/OFFICE NETWORK TOOL KIT, METHOD, AND  
5 COMPUTER PROGRAM PRODUCT

CROSS REFERENCE TO RELATED APPLICATIONS

The present document claims the benefit of the earlier filing date of, and contains  
subject matter related to that disclosed in, co-pending U.S. provisional patent application

10 Serial No. 60/130,650, entitled "A VIRTUAL VOICE NETWORK TOOL KIT, METHOD  
AND COMPUTER PROGRAM PRODUCT," filed in the United States Patent and  
Trademark Office on April 23, 1999, having common inventorship, the entire contents of  
which being incorporated herein by reference, and[.]

~~The present document contains subject matter related to that disclosed~~ in co-pending  
15 U.S. utility patent application Serial No. 09/266,724, entitled "CALL PROCESSING  
SYSTEM, METHOD AND COMPUTER PROGRAM PRODUCT," filed in the United  
States Patent and Trademark Office on March 12, 1999, bearing attorney docket number  
8006-0006-52, having common inventorship, the entire contents of which being incorporated  
herein by reference[.], and

20 ~~in the issued U.S. patent Serial No. 6,088,437, dated July 11, 2000 (hereinafter~~  
referred to as "CALL PULL-BACK"), having common inventorship, the entire contents of  
which are incorporated herein by reference.

## BACKGROUND OF THE INVENTION

### Field of the Invention:

The present invention pertains to call processing systems and computer-based products used for voice processing, multi-media messaging (e.g., voice mail, e-mail, fax etc.),  
5 electronic document sharing, and the storage of electronic records in secure hardened sites (i.e., sites secured against natural or man-made disasters), all of which form part of a “virtual environment” that provides both voice and data disaster avoidance. More particularly, the present invention is directed to development tools (referred to herein as OBJECTS), methods, and documentation used to market, deploy, create, manipulate and destroy virtual  
10 environments.

### Discussion of the Background:

Virtual environments are differentiated from other services that allow multi-media messaging and/or electronic document sharing and storage in that they typically employ a  
15 form of CALL PULL-BACK technology as discussed in U.S. utility patent application Serial No. 09/266,724 to accomplish voice call processing in the public switch telephone network (PSTN) and in a packet network. Telephony disaster avoidance is provided at the client’s request when performing primary (e.g. answering first), or secondary (e.g., answering a call forwarded or transferred in under a no answer condition), answering, and is coupled with the  
20 ability to process calls to locations such as key employees’ homes in the event of an emergency. Multi-media messaging and/or document sharing is also used to seamlessly network together a client’s staff even when that staff is deployed in multiple remote locations.

Advances in communications (e.g., cellular telephones and the Internet), the increased mobilization of the work force, and the desire of individuals to work securely from “virtual offices” have all fueled the need for integrated communications services. These services often include the voice and data networking of employees and others working outside the traditional office environment. Subscribers may send, receive and manipulate multi-media messaging, share documents, and allow callers to access members of these networks no matter where they are located. The caller need never know that the person they are calling is working from a remote location that may include their home.

It would be advantageous if a customer had the ability to continue functioning after suffering a disaster by hosting applications on equipment located in a hardened site. The routing of callers to the main greeting of the caller’s application is handled at the local telephone company central office, (CO) on a *busy* or *no answer* condition, or by an edge device located on or near the customer’s premise. The caller enters or speaks an extension number or selects from a menu and is transparently connected to an employee of the subscriber. The voiceprint of a known caller can be stored and used for security and access reasons. The caller is given further options if the call encounters a *busy* or *no answer* condition. Subscribers may access other subscribers on their network using a telephone or personal computer much like they would in a traditional office. The challenge, then, has been to create the tools, methods and documentation that enable the construction, maintenance and destruction of these networks in a rapid and reliable manner.

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### SUMMARY OF THE INVENTION

The inventor of the present invention has recognized that currently no effective tools, methods, or computer program products are available to assist in the construction,



maintenance, and destruction of virtual environments. Accordingly, one object of the present invention is to provide a solution to this problem, as recognized by the present inventor.

While various system architectures are presented herein, one attribute of the invention is a software tool kit referred to herein as OBJECTS. Depending on the business needs of the client, OBJECTS may work in conjunction with the invention described and disclosed in ~~pending U.S. utility patent application Serial No. 09/266,724~~ the issued U.S. patent, Serial No. 6,088,437, dated July 11, 2000. OBJECTS are preprogrammed software constructs that serve as high-level, multi-use, building block-like templates. These templates allow non-technical personnel who understand the business needs of a customer to rapidly and accurately construct, maintain, destroy and document a virtual voice/company/office network.

While more common methods may be used to market these products, another attribute of the invention is that the virtual environments may be packaged and marketed as software applications, and sold in stores or over the Internet. A consumer purchasing the appropriate level of a virtual environment may then order the desired configuration or upgrade needed through a web site authorized to sell the products. A client may even design and/or construct their own virtual environment utilizing tools available through an authorized web site.

The virtual environment products process voice calls and data, allow the user to access multi-media messaging from a phone or a computer, and allow document sharing, which may be accessed through the web site of a client or other designated web site. Disaster avoidance is offered, as is the replacing of a client's trunks or lines with a digital form of transport, which is advantageous since it reduces monthly trunk costs and increases the number of possible simultaneous voice and data sessions. Another advantage gained by the use of digital transport edge devices is that control of number assignments and forwarding is

taken from the incumbent local exchange carrier (ILEC) or competitive local exchange carrier (CLEC) and placed in the hands of the application service provider (ASP).

Multi-media messaging may be accessed from a computer, telephone or related device. Utilizing the PSTN or a packet network, voice calls may be processed anywhere in the world without metered charges. Callers may be offered options when a call they initiate encounters a *no answer* condition. Virtual environment applications operate on the hardware and software components comprising a virtual environment node or hub.

## BRIEF DESCRIPTION OF THE DRAWINGS

A more complete appreciation of the present invention, and many of the attendant advantages thereof, will be readily obtained as the same becomes better understood by reference to the following detailed description when considered in connection with the accompanying drawings, wherein:

Figure 1 is a diagram of an exemplary implementation of a company virtual environment operating in the public switch telephone network (PSTN) for one embodiment of the present invention;

Figure 2 is a diagram of an exemplary implementation of a company virtual environment operating in a packet network for one embodiment of the present invention;

Figure 3 is a diagram of an implementation of a virtual environment and equipment in the network hub for one embodiment of the present invention;

Figure 4 is a detailed diagram of a node in one embodiment of the present invention;

Figure 5 is a diagram demonstrating how a caller reaches the correct virtual application in one embodiment of the present invention;

Figure 6 is a diagram illustrating the use of a Sonet ring to allow callers in a LATA to reach the equipment centralized in one location where the desired application is hosted by dialing the minimum numbers required;

Figure 7 is a diagram showing central office nodes and a hub site placed on a counter rotating, self-healing Sonet ring that has a guaranteed downtime of less than one second per failure;

Figure 8 is a diagram demonstrating the deployment of equipment in multiple locations and using the carrier's outbound footprint to provide service in a LATA;

Figure 9 is a diagram clarifying the function of OBJECTS in the Objects Tool Kit in one embodiment of the present invention; and

Figure 10 is an exemplary record showing a customer's configuration of OBJECTS in one embodiment of the present invention.

5

#### BRIEF DESCRIPTION OF THE APPENDIX

An appendix is attached hereto containing the following:

Copy of the issued United States patent, Serial No. 6,088,437, dated July 11, 2000 ("CALL PULL-BACK").

10

#### DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring now to the drawings, Figure 1 illustrates one embodiment of the present invention; that of a typical small company virtual environment operating in a PSTN environment. In this embodiment, the system includes a source telephone 1, a PSTN transport 2, a virtual environment node or hub 4, and a remote destination telephone 9. A caller directly dials the telephone number 3 of a virtual environment 4 or is forwarded into the system because all of a customer's lines are busy, no one answers, or someone at the company transfers the caller. The virtual environment node or hub 4 contains the equipment hosting the application that is implemented through the use of OBJECTS. Handling and routing information is sent from the network and a translation on the incoming identification number may be performed in order to accommodate a desired numbering plan 5. The OBJECTS are configured to cause the appropriate greeting to be played to the caller 6. The OBJECTS provide the caller with the options to send, receive or manipulate a mixed media message 7. The caller dials an extension, spells some letters of a name, or otherwise makes a selection which will cause the OBJECTS to dial the appropriate remote telephone number 8.

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The caller is processed across the network (e.g., PSTN, packet network, leased lines, wireless network) to a remote destination telephone 9 where CALL PULL-BACK may come into play. CALL PULL-BACK feature is disclosed in ~~co-pending U.S. utility application Serial No. 09/266,724~~ the issued U.S. patent, Serial No. 6,088,437, dated July 11, 2000. Uses may  
5 place a call from an analog, digital, or soft phone (e.g., properly equipped multi-media personal computer) to an analog, digital or soft phone.

While Figure 1 and Figure 2 are shown separately to simplify the concept of an average company, a virtual environment may employ features shown in both figures as well as employ other services furnished by the virtual environment node or hub. Other services  
10 may include, but not be limited to, all the services commonly employed by a national Internet or application service provider.

Figure 2 illustrates another embodiment of the present invention, that of a typical small company virtual environment operating in a packet network. In this embodiment, the system includes various methods 1 employed to connect with a virtual environment hub site 3  
15 and a transport cloud 2. The virtual environment hub 3 contains the equipment hosting the application that is implemented through the use of OBJECTS. The virtual environment hub 3 may include, for example, ATM, packet and optional voice switches, gateways, concentrators, various subnets and servers 4. The OBJECTS may be configured to allow the users to perform any desired function within the scope of the current technology 5. Users  
20 may place a call from an analog, packet or soft phone to an analog, packet or soft phone 6.

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~~Figure 3~~ provides a more detailed description of one embodiment of the present invention. Shown in Figure 3 is an implementation of a virtual environment and the equipment in the virtual environment network hub 11. A single hub 11 can handle all virtual environments on a worldwide basis, or multiple hubs 11 may be used to safeguard against

cataclysmic disasters. In an embodiment where multiple hubs are used, virtual environments may be mirrored for the sake of redundancy.

An edge device (e.g., a gateway) is placed at the customer premises providing a connection point for transporting voice and or data to and from the customer premises 1.

5 Traffic may be transported between the customer premises and the pop via primary rate interface (PRI), multi-frequency (MF), dual tone multi-frequency (DTMF), or as packets 2.

Located on or near the customer premises, an optional Internet protocol (IP) gateway or integrated access device converts plain old telephone service (POTS) voice traffic to packet traffic and transmits voice and data packets to the point of presence (POP) 4. These gateways

10 and access devices (i.e. edge devices) can replace the majority o the trunks and or lines previously used by the customer. The benefits that may be derived by the customer by replacing the trunks or lines, include, for example, decreases in monthly trunk or line charges, drastic increase in voice and data throughput, improved quality, and giving numbering and forwarding control to the service provider.

15 The digital subscriber line access multiplier (DSLAM) handles packetized traffic to and from the POP 4, and has an optional access shelf for packetizing switched circuit traffic 3. The POP 4 functions as a class 5 central office (CO) and is the common fiber meet point in the LATA where the local ILEC brings traffic belonging to the CLEC. The POP 4 has one or more connections with backbone carriers and contains the equipment deployed by the

20 service provider. The POP 4 is where the traffic is transferred to an ATM cloud through an ATM access concentrator.

Typically, the majority of callers and employees of a given client are geographically located within the same LATA. For these calls (i.e., those within the same LATA), it is only necessary to allocate the bandwidth in the ATM cloud from the POP 4 to the hub 11 while a

25 selection is made. Upon reaching the hub 11, if a choice is selected which terminates on the

same concentrator from which the call originated, the talk path is completed in that concentrator and the virtual point-to-point connection in the ATM cloud is torn down and the bandwidth reallocated.

Intermachine trunks 5 connect the gateway to the PSTN 6. A-links 7, 10 are data links between signaling points and their associated service control point (SCP) in the SS7 cloud 9. Also shown in Figure 3 is an A-link and SCP where there is no public phone company 8.

The virtual environment network hub 11 functions as a class 4 Central Office. The intelligence is provided by a collection of equipment 12 that functions together through the use of the OBJECTS. This equipment includes, for example, the packet switch, the ATM switch, concentrators and gateways. This intelligence calls on the nodes (e.g., 13) made up of various servers, which host and provide services for subscriber applications as implemented by the OBJECTS.

Figure 4 is a detailed diagram of a node 13 shown in Fig. 3. Routing may be accomplished at the LEC network level when one or more than one node is in the hub. Packet switching may be accomplished at the hub. In this manner, routing to the correct node and server is assured. A node may include a voice switch 1. The number of call processing servers (e.g. 4) on a particular switch, generally one per subnet (e.g., 2) is dependent on the number of extension numbers on that switch that can be configured without the need for physical phones and associated equipment. Also shown on the subnets 2 are respective routers (e.g., 3).

Figure 5 is a diagram demonstrating how a caller reaches the correct virtual environment application implemented through the OBJECTS. The transport 1, is either switched or packet. If the transport is switched, the central office node provides handling and routing information to the various hub nodes for switched services 2. An optional node voice

switch 3 is shown, where, after translation, the incoming digits match phantom extension numbers in the numbering plan of the switch. The phantom extensions carrying digital Integration information are forwarded to a hunt pilot number containing the digital extensions used by the correct voice server that may call upon various other servers in the subnet. If the  
5 transport is packet, the ATM and packet switches, concentrators and gateways provide handling and routing information to the subnets for packetized voice and applications 4.

The information provided from the appropriate switch starts the correct application under control of the OBJECTS 5. The clients' applications are hosted on one of the many subnets with servers 6.

10 Figure 6 is a diagram of a method utilizing a Sonet ring deployed in such a way as to allow callers in a LATA to reach the equipment placed in a centralizing location. The hub site 1 hosts the desired application. The CO node 2 is a node into which callers can dial or be forwarded via a local number (i.e., the minimum number of numbers required) without incurring interlata charges. Time division multiplexing (TDM) may be employed so that  
15 callers may be *muxed* (i.e., multiplexed) in by their local CO node or gain access to the ring via a gateway. By configuring the DS1s as point-to-point, the packetized method allows a many-fold increase in throughput; and with ATM over Sonet, data and video ride virtually free in the packets needed to transport voice. Note that these TELCO nodes (CO nodes) are located in various positions within the LATA so that subscribers may access them as a local  
20 call and then be "back hauled" across the ring to the centralized hub 1 location. CO pass-throughs 3 connect the various TELCO nodes on the ring as well as the CO node 2 local to the hub location 4. Callers may be *muxed* out to the hub 1 by the local TELCO CO node 2 or routed to a packet switch and gateway servers.

Figure 7 is a diagram showing the CO nodes and hub site described above, placed on  
25 a counter-rotating, self-healing Sonet ring for transporting both voice and data in the LATA.



The inner ring has traffic flowing in a clockwise direction. The outer ring 2 has traffic flowing in a counterclockwise direction. The ring may provide a guaranteed downtime of less than one second per failure. The TELCO node 3 can be reached by the users as a local call, from which they will be “back hauled” to the hub. The hardened centralized equipment location called the hub 4, contains the equipment for electronic document storage. To avoid a single point of failure, the ring enters the hub site 4 in two places located on different faces of the hub facility.

Figure 8 is a diagram demonstrating a multi-location four node LATA method of providing service in a LATA 1. Nodes 2 are deployed at various locations within the LATA allowing all callers to access at least one of the nodes 2 in their area by dialing a local number. The number of nodes 2 providing coverage in a LATA will vary with the demographics of the area. At this time in the competition for interlata business, carriers are offering large toll-free outbound footprints. Inbound calls to the average virtual environment customer are primarily all local calls. Arrows from the nodes 2 depict the outbound footprint. In most cases, the outbound footprint is large enough to cover the majority, if not all, of the LATA 1 from any node 2 within a given LATA 1. These large outbound footprints allow the nodes 2 to process traffic without incurring interlata charges. Other means of transport that can be used to carry traffic between nodes 2 for callers who need to exceed the outbound footprint include, for example, PSTN, leased lines, wireless, fast Ethernet, frame relay, ATM, and Sonet.

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Figure 9 is a diagram clarifying the functioning of OBJECTS in the Object Tool Kit. An incoming call comes from the central office node or ATM switch 1. An optional voice switch 2 performs the numbering plan translations and is digitally integrated with the call processing server 3, commonly referred to as the voice server, where callers come under

control of OBJECTS which may in turn call upon services from the other servers and the router 4-11. The voice response server 8 is digitally integrated with the packet switch.

An OBJECT is a proven preprogrammed software construct which by itself, or when assembled with other OBJECTS, provides a desired functionality. OBJECTS are written in  
5 traditional programming languages, scripting languages, and high-level command line code. OBJECTS allow non-technical personnel who understand the business needs of a customer to rapidly and accurately create, manipulate and destroy these virtual environments.

OBJECTS operate in conjunction with, for example, parameters, tables, attributes, classes, routines, methods and compiled code which control the various components in the  
10 hub and nodes. OBJECTS perform the various functions so that the needs of the client are met. The creator of a virtual environment places clients' mailboxes in classes of service that have been pre-configured as OBJECTS. When services from other servers are needed, OBJECTS furnish those services in the appropriate manner. If switching services are required, OBJECTS will issue commands to the switch for functions such as routing a call.  
15 As with any product in the computer/telephony world, the OBJECTS Tool Kit is constantly evolving.

A living document has been created describing the functionality and services provided by each OBJECT. Personnel responsible for the creation of virtual environments use this documentation to configure the OBJECTS. OBJECTS that are used to create a particular  
20 virtual environment have the explanation of the functionality and services of the OBJECT in the documentation under the heading of each class of service (COS) or OBJECT (OBJ). The OBJECT itself is not a class of service, it is all of the preprogrammed and tested software comprising that construct. Having these preprogrammed and tested OBJECTS available

allows the offering of inexpensive, reliable, custom virtual environments in a very rapid and cost effective manner.

Cost effectiveness is an important reason that others are not building sophisticated custom configurations for large numbers of small clients. Without the use of an Object Tool Kit, their personnel would have to program each configuration from scratch. The best way to define a given OBJECT is to define its functions. One of the unique features of the OBJECTS of the present invention is that a single instance of a given OBJECT can operate at the same time on one or more physical platforms with different operating systems. Each OBJECT is made up of many components. A representative list of OBJECTS and their associated functionality is provided below.

OBJECT/Class of Service documentation:

| OBJECT/<br>CLASS OF<br>SERVICE | FUNCTION OF OBJECT/CLASS OF SERVICE  |
|--------------------------------|--|
| OBJ/COS 0                      | <p>Unassigned D.I.D. mailboxes. NOTE: A silent D.I.D. mailbox greeting must be recorded.</p> <p>Non-area code specific Object.</p> <p>Description:</p> <p>The number of a mailbox placed in this Object matches the number that will be received by the Call Processor Portion of the Node or Hub after any and all translations are accomplished. This number is generated when a caller reaches a telephone number issued to a customer. As numbers in Object 0 are not currently issued but are defined and can still be reached from the outside world, they are kept in Object 0. When one of these numbers is dialed, the following recording is played: "You have reached an unassigned telephone number, please hang up and try again". No input is accepted from the caller. No message is taken which prevents unwanted messages such as those left by automatic dialers from consuming storage. The caller hears, "Goodbye" and is dropped.</p> |

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| OBJ/COS1 | <p>Company greetings, no associated extension or telephone number, no messages may be recorded. Play greeting twice and disconnect.</p> <p>Non area code specific Objects.</p> <p>Description:</p> <p>The caller hears a recorded message and may enter an extension number or select a menu choice. No numbers are dialed automatically upon a caller reaching this mailbox. If the caller takes no action, the greeting is played twice and the caller is dropped.</p> |
|----------|--|

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| OBJ/COS2  | <p>Disconnect from caller. Play silent greeting and hang up. No input is accepted from the caller.</p> <p>Non area code specific Object.</p> <p>Description:</p> <p>Commonly used as part of a configuration where there is a need to play a recording. While the recording is being played, allow the user to take an action such as entering an extension number or making a choice. If no selection or choice is made after the recording is played, there is a moment of silence while the caller is moved to a mailbox and placed in Object 2 where they may or may not hear a second recording depending upon the application desired. No input is accepted from the caller. After the moment of silence or the second recording is played, the caller is dropped.</p> |
| OBJ/COS 3 | <p>Company greetings; no associated extension or telephone number; no messages may be recorded. Play greeting and disconnect.</p> <p>Non area code specific Object</p> <p>Description:</p> <p>The caller hears a recorded message and may enter an extension number or select a menu choice. If the caller takes no action, the caller is dropped.</p>   |

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| OBJ/COS 4 | Object dedicated to one-of-a-kind, customer specific application.  |
|           | Description:   |
|           | If caller presses a zero, a ring-all hunt group is activated.  |
| OBJ/COS 5 | Voice Response Server prompt mailboxes   |
|           | Store recordings used by the Voice Response Server   |
|           | Description:   |
|           | Store recordings used by the Voice Response portion of the Node or Hub.  |
| OBJ/COS 6 | Pilot mailbox for Voice Response Server message pool   |
|           | Store recordings used by the Voice Response Server application processor.                                      |
|           | Description:   |
|           | The lead mailbox number of a list of mailboxes responsible for the storage of application controlled messages. |

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| OBJ/COS 7 | <p>Fax only with voice annotation.</p> <p>Non area code specific Object.</p> <p>Description:</p> <p>Any mailbox placed in this Object will accept only a fax with or without voice annotation. User key press input is accepted.</p>  |
| OBJ/COS 8 | <p>Voice Response Server Error mailbox.</p> <p>Store error recording used by the Voice Response Server application processor.</p> <p>Description:</p> <p>Any mailbox placed in this Object is an error-handling mailbox for the Voice Response Server portion of the Node or Hub. User input is accepted.</p> |
| OBJ/COS 9 | <p>Fax on demand. Prints the first fax in each mailbox.</p> <p>Non area code specific Object.</p> <p>Description:</p> <p>Prints only the first fax stored in a mailbox placed in this Object.</p>   |



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| OBJ/COS 10 | <p>Application Processor control.</p> <p>Non area code specific Object.</p> <p>Description:</p> <p>Takes the caller to Application Processor Control. A caller that reaches a mailbox in this Object is provided services by the Voice Response Server application associated with that mailbox which acts as a call identification number.</p>  |
| OBJ/COS 11 | <p>Plays greeting once; after greeting plays, use extension number for next mailbox.</p> <p>Non area code specific Object.</p> <p>Description:</p> <p>Normally used to play a recording once which may give the caller enough time to take an action such as dialing an extension or selecting a choice. After greeting plays or if the caller takes no action, the caller is moved to a different part of the application. Also used as a way to rapidly and automatically move a caller from one mailbox to another.</p> |

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OBJ/COS 12 Play greeting twice; after greeting plays, use extension number for next mailbox.

Non area code specific Object.

Description:

Normally used to play a recording twice, which may give the caller enough time to take an action such as dialing an extension or selecting a choice. After greeting plays or if the caller takes no action, the caller is moved to a different part of the application. Also used as a way to rapidly and automatically move a caller from one mailbox to another.

OBJ/COS 13 Block access to system distribution pilot numbers.

Non area code specific Object.

Description:

Access to a distribution list whose pilot number is placed in this Object is restricted to users with special mailbox programming.

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| OBJ/COS 14 | <p>Fax overflow mailboxes (M/Bs).</p> <p>Non area code specific Object.</p> <p>Description:</p> <p>Used to provide a “fax store and forward” service to a customer. When a fax machine on the customer’s premise is busy or no answer, the caller is forwarded to a mailbox in this Object that provides fax tone, takes a fax, and repeatedly attempts to deliver that fax back to the originally called fax machine until successful.</p>   |
| OBJ/COS 15 | <p>Call number first before playing greeting; record message option; offsite only if urgent. May receive fax.</p> <p>Object dedicated to one-of-a-kind, customer specific application.</p> <p>Description:</p> <p>Ring an extension; if busy or no answer, play a greeting, take a message, and activate “off site message waiting” if the caller marked the message urgent. In addition, a mailbox placed in this Object will accept a fax. While listening to the greeting the caller may enter an extension number or select a choice.</p> |

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OBJ/COS 16 Call number first before playing greeting; record message option; station has multiple mailboxes; ask before connecting; offsite only if urgent; may receive fax.

Object dedicated to one-of-a-kind, customer specific application.

Description:

Ring a phone; if answered, announce the call; if busy or no answer, play a greeting, take a message, and activate “off site message waiting” if the caller marked the message urgent. In addition, a mailbox placed in this Object will accept a fax. While listening to the greeting the caller may enter an extension number or select a choice.

OBJ/COS 17 “Greeting on” stops numbers from being dialed; record message option; offsite only if urgent; may receive fax.

Object dedicated to one-of-a-kind, customer specific application.

Description:

Recording a greeting and turning the greeting on stops the extension number associated with a mailbox in this Object (if one exists) from being dialed.

Mailbox will take a message and activate “off site message waiting” if the caller marked the message urgent. In addition, a mailbox placed in this Object will accept a fax. While listening to the greeting the caller may enter an extension number or select a choice.

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| OBJ/COS 18 | <p>Professional voice.</p> <p>Object dedicated to one-of-a-kind, customer specific application.</p> <p>Description:</p> <p>Along with the normal features and functions given most users, a Mailbox placed in this Object has the privilege of being able to name mailboxes. Recording a greeting and turning the greeting on stops the extension number associated with a mailbox in this Object (if one exists) from being dialed. While listening to the greeting the calle may enter an extension number or select a choice.</p>  |
| OBJ/COS 19 | <p>Forms.</p> <p>Object dedicated to one-of-a-kind, customer specific application.</p> <p>Description:</p> <p>This Object provides specific customers with an application that asks a series of questions one at a time and records the answers the caller gives in the caller's own voice. After the questions are asked, the caller is given the option of reviewing their answers and re-recording them if so desired. Upon acceptance of the answers by the caller, the answers to the questions are placed in a mailbox which has been specified by the customer for further action.</p> |

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| <p>OBJ/COS 21</p> | <p>Page every time a message is left.</p> <p>Object dedicated to one-of-a-kind, customer specific application.</p> <p>Description:</p> <p>When placed in this Object, a mailbox with an internal extension will activate a pager every time a message is left during user specified time periods. Recording a greeting and turning the greeting on stops the extension number associated with a mailbox in this Object (if one exists) from being dialed. While listening to the greeting the caller may enter an extension number or select a choice.</p> |
| <p>OBJ/COS 30</p> | <p>Local call; call number first before playing greeting; record message option.</p> <p>Non area code specific Objects.</p> <p>Description:</p> <p>A mailbox placed in this Object will call an external telephone number without dialing an area code and if not answered, will play a greeting and record a message. While listening to the greeting the caller may enter an extension number or select a choice.</p>  |

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| OBJ/COS 31 | <p>Local call; call number first before playing greeting; record message option.</p> <p>Station has multiple mailboxes; ask before connecting.</p> <p>Non area code specific Objects.</p> <p>Description:</p> <p>Dial a telephone number without dialing an area code; if answered, announce the call; if <i>busy or no answer</i>, play a greeting and take a message. While listening to the greeting the caller may enter an extension number or select a choice.</p>   |
| OBJ/COS 32 | <p>Local call; "greeting on" stops numbers from being dialed; record message option.</p> <p>Non area code specific Objects.</p> <p>Description:</p> <p>Recording a greeting and turning the greeting on stops the telephone number associated with a mailbox in this Object (if one exists) from being dialed. When the user turns off the greeting, a mailbox placed in this Object will ring a phone without dialing an area code. The mailbox will take a message. While listening to the greeting the caller may enter an extension number or select a choice.</p> |

OBJ/COS 33

Local call; call number first before playing greeting; record message option;

Offsite only if urgent; may receive Fax.

Non area code specific Objects.

Description:

Ring a phone without dialing an area code; if *busy or no answer*, play a greeting and take a message. Mailbox will take a message and activate “off site message waiting” if the caller marked the message urgent. In addition, a mailbox placed in this Object will accept a fax. While listening to the greeting the caller may enter an extension number or select a choice.



OBJ/COS 34

Local call, call number first before playing greeting; record message option.

Station has multiple mailboxes; ask before connecting. Offsite only if urgent.

May receive Fax.

Non area code specific Objects.

**Description:**

Ring a phone without dialing an area code. If answered, the call will be announced and the called party will be given the option to accept or reject the call.

If *busy or no answer*, a greeting may be played and a message taken. Mailbox will take a message and activate "off site message waiting" if the caller marked the message urgent. In addition, a mailbox placed in this Object will accept a fax.

While listening to the greeting the caller may enter an extension number or select a choice.

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OBJ/COS 35 Local call; "greeting on" stops numbers from being dialed; record message option; offsite only if urgent; may receive Fax.

Non area code specific Objects.

**Description:**

Recording a greeting and turning the greeting on stops the telephone number associated with a mailbox in this Object (if one exists) from being dialed. When the user turns off the greeting, a mailbox placed in this Object will ring a phone without dialing an area code. Mailbox will take a message and activate "off site message waiting" if the caller marked the message urgent. In addition, a mailbox placed in this Object will accept a fax. While listening to the greeting the caller may enter an extension number or select a choice.

OBJ/COS 36 Local call; blind transfer.

Non area code specific Objects.

**Description:**

A mailbox in this Object will dial a telephone number without dialing an area code and then perform a blind transfer. The caller may dial no numbers and no messages may be recorded.

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| OBJ/COS 37 | <p>Local call; call number first before playing greeting; no messages; play greeting twice; allow user to dial.</p> <p>Non area code specific Objects.</p> <p>Description:</p> <p>A mailbox in this Object will dial a telephone number without dialing an area code; if <i>busy or no answer</i>, the greeting will play twice, the user will be allowed to dial an extension or select a choice. No messages may be recorded.</p> |
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The following is an example of a set of area code specific OBJECTS. For clarity, only one set of area code specific OBJECTS are shown.

Example set of Area Code Specific OBJECTS:

|            |   |
|------------|---|
| OBJ/COS 50 | <p>(305) area code call; call number first before playing greeting; record message option.</p> <p>Area code specific Objects.</p> <p>Description:</p> <p>A mailbox placed in this Object will dial a “1” and the above area code before calling an external telephone number. If the call is not answered; the mailbox will play a greeting and record a message. While listening to the greeting the caller may enter an extension number or select a choice.</p>  |
| OBJ/COS 51 | <p>(305) area code call; call number first before playing greeting; record message Option. Station has multiple mailboxes; ask before connecting.</p> <p>Area code specific Objects.</p> <p>Description:</p> <p>A mailbox placed in this Object will dial a “1” and the above area code before calling an external telephone number. If answered, it will announce the call; if <i>busy</i> or <i>no answer</i>, it will play a greeting and take a message. While listening to the greeting the caller may enter an extension number or select a choice.</p> |

OBJ/COS 52

(305) area code call; "greeting on" stops numbers from being dialed; record

Message option.

Area code specific Objects.

Description:

Recording a greeting and turning the greeting on stops the telephone number associated with a mailbox in this Object (if one exists) from being dialed. When the greeting is turned off by the user, a mailbox placed in this Object will dial a "1" and the above area code before calling an external telephone number. The mailbox will take a message. While listening to the greeting the caller may enter an extension number or select a choice.

OBJ/COS 53

(305) area code call; call number first before playing greeting; record message

Option; offsite only if urgent; may receive Fax.

Area code specific Objects.

Description:

A mailbox placed in this Object will dial a "1" and the above area code before calling an external telephone number. If *busy* or *no answer*, play a greeting and take a message. Mailbox will take a message and activate "off site message waiting notification" if the message was marked urgent. In addition, a mailbox placed in this Object will accept a fax. While listening to the greeting the caller may enter an extension number or select a choice.

(305) area code call; call number first before playing greeting; record message option. Station has multiple mailboxes; ask before connecting. Offsite only if urgent. May receive Fax.

Area code specific Objects.

Description:

A mailbox placed in this Object will dial a "1" and the above area code before calling an external telephone number. If answered, the call will be announced and the called party will be given the option to accept or reject the call. If *busy* or *no answer*, a greeting may be played and a message taken. Mailbox will take a message and activate "off site message waiting if the message was marked urgent. In addition, a mailbox placed in this Object will accept a fax. While listening to the greeting the caller may enter an extension number or select a choice.

|                   |  |
|-------------------|--|
| <p>OBJ/COS 55</p> | <p>(305) area code call; “greeting on” stops numbers from being dialed; record message option; Offsite only if urgent; may receive Fax.</p> <p>Area code specific Objects.</p> <p>Description:</p> <p>Recording a greeting and turning the greeting on stops the telephone number associated with a mailbox in this Object (if one exists) from being dialed. When the greeting is turned off by the user, a mailbox placed in this Object will dial a “1” and the above area code before calling an external telephone number.</p> <p>Mailbox will take a message and activate “off site message waiting” if the caller marked the message urgent. In addition, a mailbox placed in this Object will accept a fax. While listening to the greeting the caller may enter an extension number or select a choice.</p> |
| <p>OBJ/COS 56</p> | <p>(305) area code call; blind transfer.</p> <p>Area code specific Objects.</p> <p>Description:</p> <p>A mailbox placed in this Object will dial a “1” and the above area code before calling an external telephone number and performing a blind transfer. The caller may dial no numbers and no messages may be recorded.</p>  |



OBJ/COS 57

(305) area code call; call number first before playing greeting; no messages; play greeting twice; allow user to dial.

Area code specific Objects.

Description:

A mailbox placed in this Object will dial a "1" and the above area code before calling an external telephone number. If the number is *busy* or *no answer*, a greeting will play twice and the user will be allowed to dial an extension or select a choice; no messages may be recorded.

OBJ/COS 455

Object dedicated to one-of-a-kind, customer specific application.

Description:

Ring a phone without dialing an area code. If answered, the call will be announced and the called party will be given the option to accept or reject the call.

If *busy* or *no answer*, a greeting may be played and a message taken. Mailbox will take a message and activate "off site message waiting" if the caller marked the message urgent. In addition, a mailbox placed in this Object will accept a fax.

While listening to the greeting the caller may enter an extension number or select a choice.

This Object provides a special dynamic call blocking service to the company.

When a caller enters a universal port they are given a numeric value that stays with them for the duration of the call. The caller may only reach an Object with the same numeric value or a "0" value.

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OBJ/COS 456

Object dedicated to one-of-a-kind, customer specific application.

Description:

Takes the caller to Application Processor Control. A caller that reaches a mailbox in this Object is taken to the IVR application associated with that mailbox which acts as a call identification number.

This Object provides a special dynamic call blocking service to the company.

When a caller enters a universal port they are given a numeric value that stays with them for the duration of the call. The caller may only reach an Object with the same numeric value or a "0" value.

OBJ/COS 457

(800) area code.

Object dedicated to one-of-a-kind, customer specific application.

**Description:**

A mailbox placed in this Object will dial a "1" and the above area code before calling an external telephone number. If answered, it will announce the call; if *busy* or *no answer*, it will play a greeting and take a message. While listening to the greeting the caller may enter an extension number or select a choice.

This Object provides a special dynamic call blocking service to the company.

When a caller enters a universal port they are given a numeric value that stays with them for the duration of the call. The caller may only reach an Object with the same numeric value or a "0" value.

|             |   |
|-------------|---|
| OBJ/COS 458 | <p>Object dedicated to one-of-a-kind, customer specific application.</p> <p>Description:</p> <p>Recording a greeting and turning the greeting on stops the telephone number associated with a mailbox in this Object (if one exists) from being dialed. When the user turns off the greeting, a mailbox placed in this Object will ring a phone without dialing an area code. Mailbox will take a message. While listening to the greeting the caller may enter an extension number or select a choice.</p> <p>This Object provides a special dynamic call blocking service to the company. When a caller enters a universal port they are given a numeric value that stays with them for the duration of the call. The caller may only reach an Object with the same numeric value or a "0" value.</p> |
| OBJ/COS 459 | <p>Object dedicated to one-of-a-kind, customer specific application.</p> <p>Used to automatically move callers to different parts of an application.</p> <p>Description:</p> <p>This Object provides a special dynamic call blocking service to the company. When a caller enters a universal port they are given a numeric value that stays with them for the duration of the call. The caller may only reach an Object with the same numeric value or a "0" value.</p>  |

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| OBJ/COS 460 | <p>Object dedicated to one-of-a-kind, customer specific application.</p> <p>Description:</p> <p>Plays an announcement twice and hangs up.</p> <p>This Object provides a special dynamic call blocking service to the company.</p> <p>When a caller enters a universal port they are given a numeric value that stays with them for the duration of the call. The caller may only reach an Object with the same numeric value or a "0" value.</p> |
| OBJ/COS 462 | <p>Object dedicated to one-of-a-kind, customer specific application.</p> <p>Description:</p> <p>Ring a phone without dialing an area code; if answered, announce the call; if <i>busy</i> or <i>no answer</i>, play a greeting and take the caller to a specific location in the customer's configuration. While listening to the greeting the caller may enter an extension number or select a choice.</p>                                      |
| OBJ/COS 463 | <p>Object dedicated to one-of-a-kind, customer specific application.</p> <p>Description:</p> <p>Ring a phone without dialing an area code; if answered, announce the call; if <i>busy</i> or <i>no answer</i>, play a greeting and take the caller to a specific location in the customer's configuration. While listening to the greeting the caller may enter an extension number or select a choice.</p>                                      |

|             |   |
|-------------|---|
| OBJ/COS 464 | <p>Object dedicated to one-of-a-kind, customer specific application.</p> <p>Description:</p> <p>This Object provides a specific customer with an application that asks a series of questions one at a time and records the answers that a caller gives in their own voice. After the questions are asked, the caller is given the option of reviewing their answers and re-recording them if so desired. Upon acceptance of the answers by the caller, the answers to the questions are placed in a mailbox specified by the customer for further action.</p> |
| OBJ/COS 465 | <p>Object dedicated to one-of-a-kind, customer specific application.</p> <p>Description:</p> <p>This Object provides a specific customer with an application that asks a series of questions one at a time and records the answers that a caller gives in their own voice. After the questions are asked, the caller is given the option of reviewing their answers and re-recording them if so desired. Upon acceptance of the answers by the caller, the answers to the questions are placed in a mailbox specified by the customer for further action.</p> |
| OBJ/COS 468 | <p>Object dedicated to one-of-a-kind, customer specific application.</p> <p>Description:</p> <p>This Object provides time of day control so callers hear different appropriate recordings at different times of day.</p>  |

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| OBJ/COS 469 | <p>Object dedicated to one-of-a-kind, customer specific application.</p> <p>Description:</p> <p>This Object provides time of day control so callers who press a “0” for the operator will be moved to different mailboxes during different times of day and after hours. One mailbox will ring a phone without dialing an area code; if answered, announce the call; if <i>busy</i> or <i>no answer</i>, play a greeting and take a message. The other mailbox takes a message without dialing a phone (normally used after hours or during lunch). While listening to the greeting the caller may enter an extension number or select a choice.</p> |
| OBJ/COS 472 | <p>Object dedicated to one-of-a-kind, customer specific application.</p> <p>Description:</p> <p>A mailbox placed in this Object has an intercept that can be controlled by time of day.</p>  |
| OBJ/COS 473 | <p>(718) area code; blind transfer.</p> <p>Area code specific Objects.</p> <p>Description:</p> <p>A mailbox placed in this Object will dial a “1” and the above area code before calling an external telephone number and performing a blind transfer. The caller may dial no numbers and no messages may be recorded.</p>   |



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| OBJ/COS 474 | <p>Object dedicated to one-of-a-kind, customer specific application.</p> <p>Description:</p> <p>This Object provides time of day control so callers hear different appropriate recordings at different times of day.</p>  |
| OBJ/COS 475 | <p>Object dedicated to one-of-a-kind, customer specific application.</p> <p>Description:</p> <p>The caller hears a recorded message and may enter an extension number or select a menu choice. No telephone numbers are dialed automatically upon a caller reaching this mailbox. If the caller takes no action, the greeting is played twice and the caller is dropped. A mailbox placed in this Object has a specific dedicated operator when a "0" is pressed.</p>   |
| OBJ/COS 511 | <p>Ports level</p> <p>Ports level Object.</p> <p>This is a fail safe Object where callers are sent when there is no identifying number coming from the PBX portion of the Node or Hub. This Object also comes into play when the Call Processor portion of the Node or Hub doesn't know what else to do with the caller due to a software or ring cadence error. This Object contains the greetings that are played during different times of day and the operator's mailboxes that are used when a caller presses "0".</p> |

Figure 10 shows an example of the records kept of an actual customer's configuration of the OBJECTS used to implement their particular virtual environment. Included are the names, addresses and telephone numbers changed to insure the customer's privacy. Actual verbiage spoken to the caller with a three-letter name in place of the actual customer's name is also part of this example. Each client has a drawing of their configuration designed to be easily read by personnel responsible for the creation, manipulation and destruction of virtual environments. Standardized documentation of the configuration of the OBJECTS allows the drawings to be created rapidly and accurately by copying documentation of pre-configured OBJECTS from a master template drawing.

As shown in Figure 10, the documentation includes the telephone number 1 that receives callers who are forwarded or transferred from a customer location or who dial in directly. The entry "M/B 2004,N,468" depicts a mailbox (M/B) whose first four numbers match the last four digits of the telephone number that receives callers. '2004' is the mailbox number. 'N' means there is no telephone number or extension number associated with this mailbox as a number to be dialed when the caller reaches M/B 2004. '468' is the OBJECT number. M/B 2004 has been placed in OBJECT 468. OBJECT 468 is dedicated to a one-of-a-kind, customer specific application. OBJECT 468 provides time of day control so callers hear different appropriate recordings at different times of day.

The next set of entries in the documentation 2, the first being '-MTWTF-08:00-12:00 N/B 83500,N,1' explain the different actions that will be taken based on time of day. For example, the first entry indicates that on Monday through Friday, from 8:00 A.M. until 12:00 P.M., a moment of silence is played to the caller. The caller then hears the business hours greeting stored in mailbox 83500,N,1. As explained above, this notation indicates that mailbox 83500 is in OBJECT 1. Upon hearing any part of the greeting recorded in mailbox

83500, the caller may enter an extension number. This extension number is, in reality, a mailbox number. The caller may also select a choice that may be offered in the recording played to the caller such as 0 or 1-9. If the caller does nothing, the greeting will repeat and after several seconds of silence, the caller will hear “Goodbye” and be dropped. The caller will not be permitted to leave a message.

By referencing the table above, the definition of OBJECT 1, used in this example, can be determined. As described in that table, OBJECT 1 provides company greetings, has no associated extension or telephone number, and no messages may be recorded. OBJECT 1 will play the greeting twice, then disconnect the caller. OBJECT 1 is not an area code specific OBJECT. The description of OBJECT 1, which may be used by the personnel configuring the system to determine if it provides the desired functionality, is “The caller hears a recorded message and may enter an extension number or select a menu choice. No numbers are dialed automatically upon a caller reaching this mailbox. If the caller takes no action, the greeting is played twice and the caller is dropped.”

When a mailbox such as (M/B) 83800,9979390,32 (see 4 in Figure 10) is reached by a caller selecting choice “0” which is the business hours intercept (the operator), the OBJECT obtains the appropriate external dial tone and dials the telephone number XXX-XXXX. Once the telephone number is dialed, CALL PULL-BACK is employed.

The next entry in the documentation, ‘A/C A/E to M/B 1077,9979390,32’ 5 means that if a caller leaves a message in M/B 83800, it will be “auto copied” to M/B 1077 and “auto erased” from M/B 83800. M/B 1077 will obtain the appropriate external dial tone from its OBJECT and, depending on how the customer wants the messaging waiting notification times set up in that M/B, message waiting notification will be performed to the telephone

number 997-9390. At different times of day different company main greetings are played to the caller.

The entry 'Lunch and Default Intercept M/B 83900,N,32' 6 provides the configuration of the behavior for all times of day and days of week not explicitly configured above, and is typically used for after hours. The entry 'Max 1 Pre 8410' 7 means that if the caller presses choice "1", they will be taken to M/B 84101 and governed by OBJECT 469.

The recordings spoken to the callers by a mailbox (M/B) number this example are configured as follows:

10 **XYZ Company Greetings**

**M/B 83500**

Business Hours: Monday-Friday 8:00 A.M. to 12:00 P.M., and 1:00 P.M. to 5:00 P.M.

**Greeting:** *Thank you for calling XYZ Company. All available phone lines are busy or our operator is assisting a previous caller. If you know your party's extension, please enter it now or press "0" for the operator. For our corporate directory, press "1".*

**M/B 83500, 83600 & 83700**

Holiday Greeting: Put in as a message and prior to the holiday, do a greeting/message swap.

20 **Greeting:** *Thank you for calling XYZ Company. Our offices are closed for the holiday.*

---

*If you would like to leave a message, we will be checking in; however, the operator will not be available to assist you. For the corporate directory, press "1". Have a great holiday.*

**M/B 83600**

Lunch Time: Monday-Friday 12:01 P.M. to 12:59 P.M.

Greeting: *Thank you for calling XYZ Company. We are closed for lunch and will return at 1:00 P.M. If you know the extension of the person for whom you wish to*  
5 *leave a message, please enter it now. For our corporate directory, press "1".*  
*To leave a message for our operator, press "0".*

**M/B 83700**

After hours

10 Greeting: *Thank you for calling XYZ Company. Our office hours are Monday through Friday from 8:00 A.M. to 5:00 P.M. If you know the extension of the person for whom you wish to leave a message, please enter it now. For our corporate directory, press "1". To leave a message for our operator, press "0".*

15 **M/B 83800**

**Name** *The receptionist*

**M/B 83900**

**Name** *The receptionist*

20 **Greeting:** *Please leave a message at the sound of the tone and we will return your call as soon as possible.*

---

**M/B 84101**

**Greeting:** *The following is a list of our corporate personnel. At any time you may enter their extension number to leave a message.*

| First Name | Last Name | Extension 1060 |
|------------|-----------|----------------|
| First Name | Last Name | Extension 1061 |
| First Name | Last Name | Extension 1062 |
| First Name | Last Name | Extension 1063 |
| First Name | Last Name | Extension 1064 |
| First Name | Last Name | Extension 1065 |
| First Name | Last Name | Extension 1066 |
| First Name | Last Name | Extension 1067 |
| First Name | Last Name | Extension 1068 |
| First Name | Last Name | Extension 1069 |
| First Name | Last Name | Extension 1070 |
| First Name | Last Name | Extension 1071 |
| First Name | Last Name | Extension 1072 |
| First Name | Last Name | Extension 1073 |
| First Name | Last Name | Extension 1074 |
| First Name | Last Name | Extension 1075 |
| First Name | Last Name | Extension 1076 |
| First Name | Last Name | Extension 1077 |

**M/B 1077**

**Name**     *The receptionist*

**Greeting:** *You have reached (First Name, Last Name), the Receptionist. If you are calling concerning an office matter or to schedule an appointment, please*  
5           *leave your name and telephone number at the tone and I will get back to you.*

**M/B 1060**

**Greeting:** *You have reached the voice mail of (First Name, Last Name). If you are calling concerning an office matter or to schedule an appointment, please call*  
10           *the receptionist at extension 1077 by pressing "1" now. If this is urgent, you may leave a one-minute voice message that will page (First Name). Please*  
*leave your message after the tone.*

**All M/B's in the following list;**

15

|            |           |          |
|------------|-----------|----------|
| First Name | Last Name | M/B 1069 |
| First Name | Last Name | M/B 1061 |
| First Name | Last Name | M/B 1062 |
| First Name | Last Name | M/B 1063 |
| First Name | Last Name | M/B 1064 |
| First Name | Last Name | M/B 1065 |
| First Name | Last Name | M/B 1067 |
| First Name | Last Name | M/B 1068 |

|            |           |          |
|------------|-----------|----------|
| First Name | Last Name | M/B 1070 |
| First Name | Last Name | M/B 1071 |
| First Name | Last Name | M/B 1073 |
| First Name | Last Name | M/B 1074 |
| First Name | Last Name | M/B 1075 |
| First Name | Last Name | M/B 1076 |

**Greeting:** *You have reached the voice mail of (First Name, Last Name). Please leave a detailed message at the sound of the tone and your call will be returned as soon as possible.*

5

**All M/Bs in the following list;**

|            |           |          |
|------------|-----------|----------|
| First Name | Last Name | M/B 1066 |
| First Name | Last Name | M/B 1072 |

**Greeting:** *You have reached the voice mail of (First Name, Last Name). Please leave a detailed message at the sound of the tone and your call will be returned as soon as possible. For further options, press star\* after your message. If you mark your message urgent, (First Name, Last Name) will be paged.*

10

The processes set forth in the present description may be implemented using a  
 15 conventional general purpose microprocessor programmed according to the teachings of the present specification, as will be appreciated to those skilled in the relevant art(s).

Appropriate software coding can readily be prepared by skilled programmers based on the



teachings of the present disclosure, as will be apparent to those skilled in the relevant art(s).

The present invention thus also includes a computer-based product that may be hosted on a storage medium and may include instructions which can be used to program a computer to perform a process in accordance with the present invention. The storage medium can include, but is not limited to, any type of disk including floppy disk, optical disk, CD-ROMS, and magneto-optical disks, ROMS, RAMs, EPROM's, flash memory, magnetic or optical cards, or any type of media suitable for storing electronic instructions.

Numerous modifications and variations of the present invention are possible in light of the above teachings and should be construed as part of the present invention.

## CLAIMS

1. A method for configuring a communications system having a CALL PULL-BACK mechanism, comprising the steps of:

- 5       populating a digital repository with preprogrammed software objects;  
      selecting a subset of the preprogrammed software objects from the digital repository;  
      customizing the subset of preprogrammed software objects with user defined  
parameters so as to implement predetermined functions when executed by a processor;  
      mapping the predetermined functions to corresponding operating system inputs; and  
10       performing the determined functions when initiated by the corresponding  
operating system inputs.

2. The method of Claim 1, wherein the predetermined functions are associated with said CALL PULL-BACK mechanism.

3. The method of Claim 1, further comprising the step of:  
15       documenting the preprogrammed software objects including information about the  
predetermined functions.

4. The method of Claim 3, further comprising the step of:  
      documenting the preprogrammed software objects, after being customized, as  
drawings including the user defined parameters.

20       5. The method of Claim 1, further comprising the step of:  
      packaging the preprogrammed software objects as a consumer product.

6. The method of Claim 5, further comprising the step of:  
      offering to sell the packaged preprogrammed software objects to consumers.

7. The method of Claim 5, wherein said consumer product including a computer readable medium.

8. The method of Claim 5, wherein said consumer product further includes documentation about the preprogrammed software objects.

5 9. The method of Claim 6, wherein:  
the offering to sell step comprises advertising for sale the consumer product over the Internet.

10. A configurable communications system, comprising:

a digital repository populated with preprogrammed software objects configured to  
10 perform predetermined functions that are customizable by user defined parameters when executed by a processor;

input devices configured to receive the user defined parameters;

the processor; and

a computer readable medium encoded with processor readable instructions that when  
15 executed by the processor implement,

a call processing mechanism configured to perform the predetermined functions as customized by the user defined parameters.

11. The system of Claim 10, wherein the predetermined functions are associated with a CALL PULL-BACK mechanism.

20 12. The system of Claim 10, wherein:

the digital repository being a database hosted on at least one of a computer readable medium and printed document.

13. The system of Claim 10, wherein:

the call processing mechanism being configured to provide multi-media messaging including at least one of voice mail, e-mail, and facsimile.

14. The system of Claim 10, further comprising:

5 a communication interface for receiving data over at least one of a Sonet Ring network and a meshed network.

15. The system of Claim 14, wherein the at least one of a Sonet Ring network and a meshed network being configured with ATM as a transport for packetized traffic.

16. A computer program product, comprising:

10 a computer storage medium and a computer program code mechanism embedded in the computer storage medium for causing a processor to implement a call processing system, the computer program code mechanism comprising:

a first computer code device configured to create a library of preprogrammed software objects capable of performing predetermined functions;

15 a second computer code device configured to store the library of preprogrammed software objects in a digital repository;

a third computer code device configured to select a subset of preprogrammed software objects from the digital repository based on a preselected portion of the predetermined functions;

20 a fourth computer code device configured to customize the selected preprogrammed software objects based on user defined parameters; and

a fifth computer code device configured to process calls based on the selected programmed software objects as customized with the user defined parameters.

17. The computer program product of Claim 16, wherein the predetermined functions are associated with a CALL PULL-BACK mechanism.

18. The computer program product of Claim 16, wherein the digital repository comprises a database.

5 19. The computer program product of Claim 18, wherein said database being hosted on at least one of a computer readable medium and a printed document.

20. The computer program product of Claim 16, wherein said predetermined functions being a user customized call pull-back operation.

10 21. The computer program product of Claim 16, wherein said user defined parameters being communication system attributes.

22. A system for configuring a communications system having a CALL PULL-BACK mechanism, comprising:

means for populating a digital repository with preprogrammed software objects;

15 means for selecting a subset of the preprogrammed software objects from the digital repository;

means for customizing the subset of preprogrammed software objects with user defined parameters so as to implement predetermined functions when executed by a processor;

20 means for mapping the predetermined functions to corresponding operating system inputs; and

means performing the predetermined functions when initiated by the corresponding operating system inputs.

23. The system of Claim 22, wherein the predetermined functions are associated with a CALL PULL-BACK mechanism.

25

24. The system of Claim 22, further comprising:

means for disaster resistant communications.

25. The system of Claim 22, further comprising:

means for transporting traffic between nodes when an outbound footprint allowing

5 users node access as a local call is exceeded.

26. The system of Claim 22, further comprising:

means for locking up an allocation of bandwidth needed in a virtual point to point connection during call set.

27. The system of Claim 22, further comprising:

10 means for tearing down an ATM cloud providing a virtual point to point connection after determining that a call terminates on a same concentrator as the call was originated on.

28. The system of Claim 22, further comprising:

means for controlling numbering and forwarding from digital transport edge devices placed on or near a customer's premises.

15 29. The system of Claim 22, further comprising:

means for record keeping for each client's configuration of the subset of preprogrammed software objects.

30. The system of Claim 22, further comprising:

means for documenting spoken verbiage and member information used in

20 customizing the subset of preprogrammed software objects.

---

31. The system of Claim 22, further comprising:

means for documenting the subset of preprogrammed software objects used in the system.

## ABSTRACT OF THE DISCLOSURE

A method, system, and computer program product for creating, maintaining and destroying virtual environments. Preprogrammed software objects that perform predetermined functions are created and stored in a repository, the desired objects are  
5 selected and configured with user defined parameters to create a customized call processing system. The use of preprogrammed software objects allows the rapid and accurate configuration, manipulation and destruction of virtual environments that networks subscribers together, processes calls, enables messaging, and provides disaster avoidance.

10

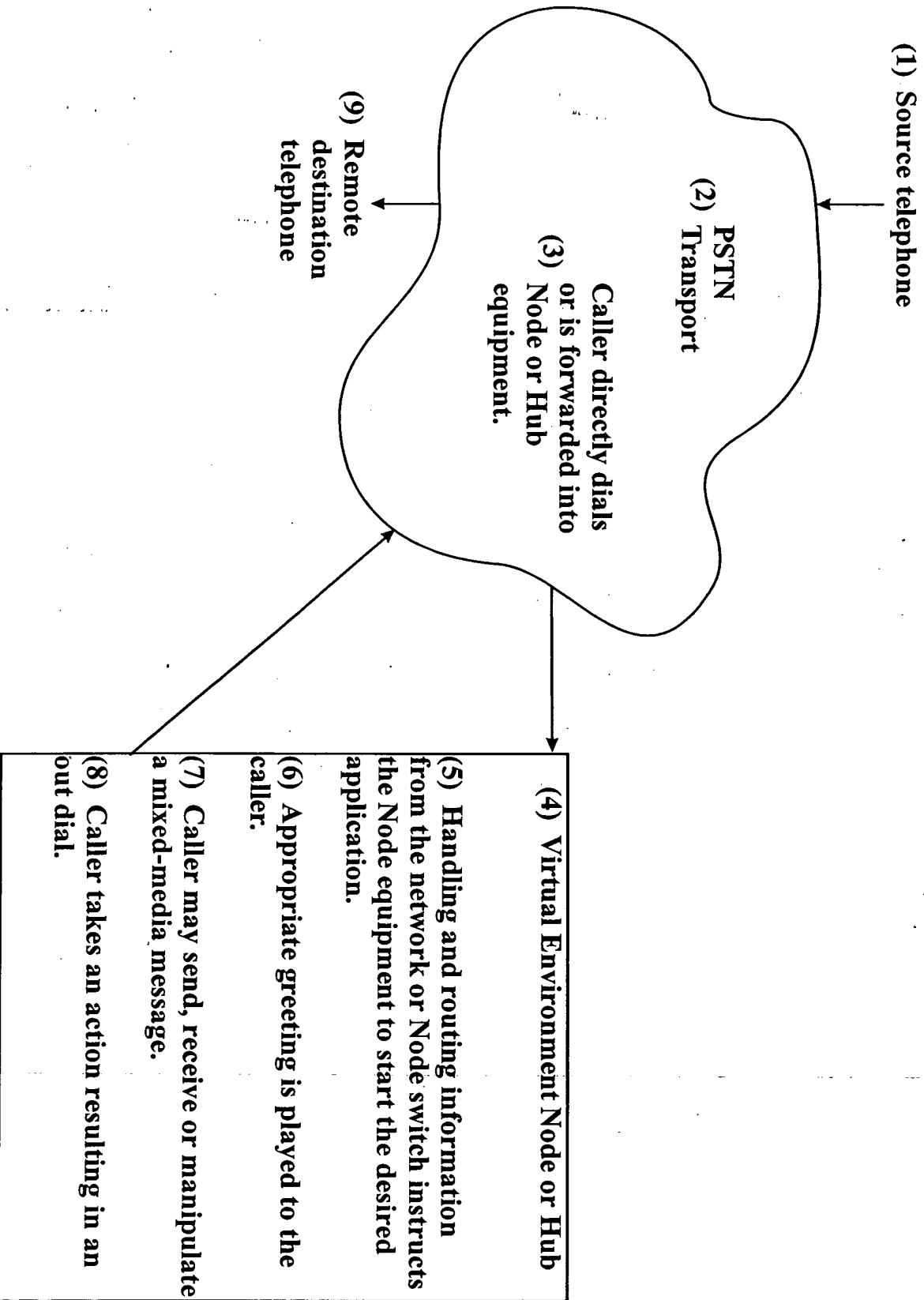
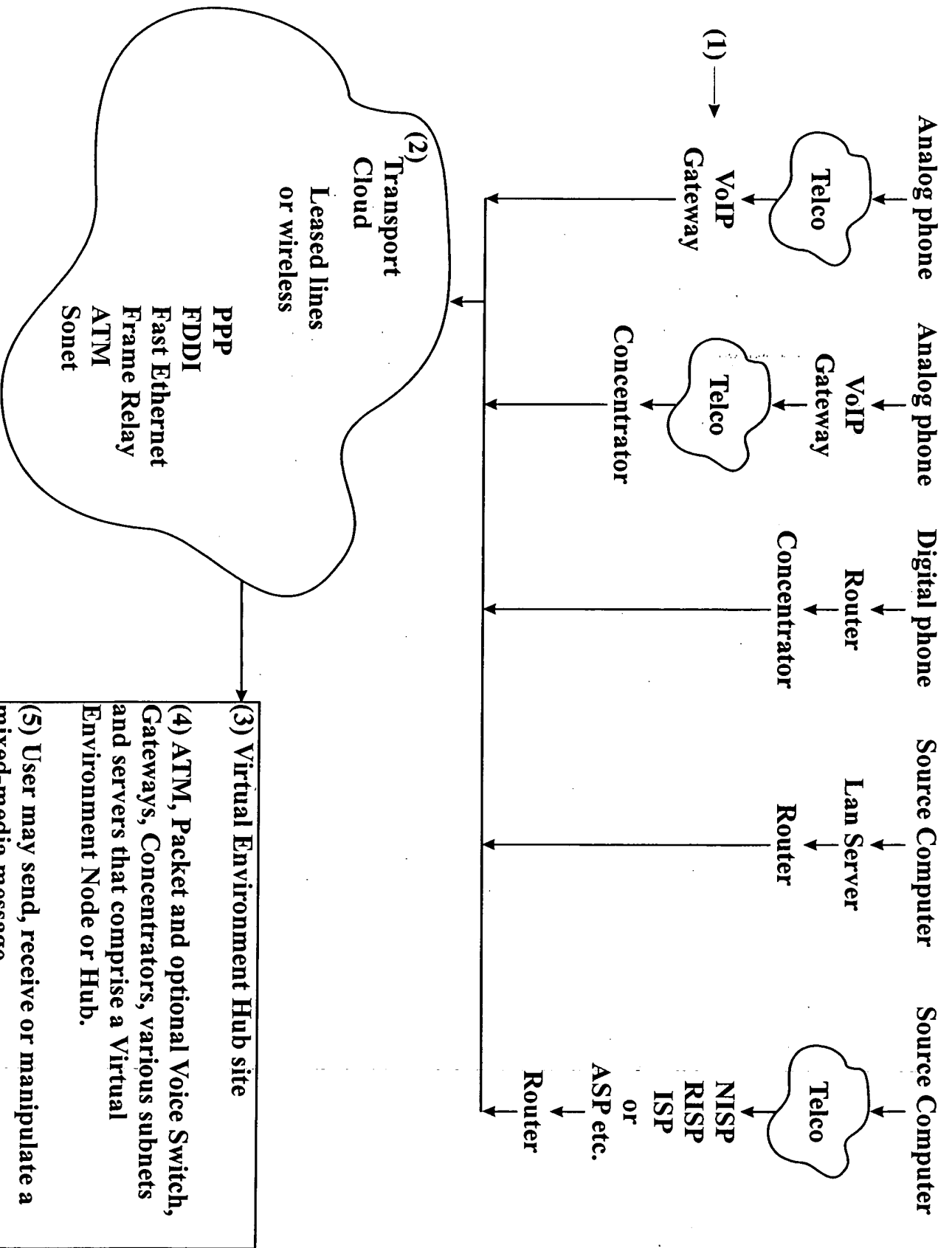
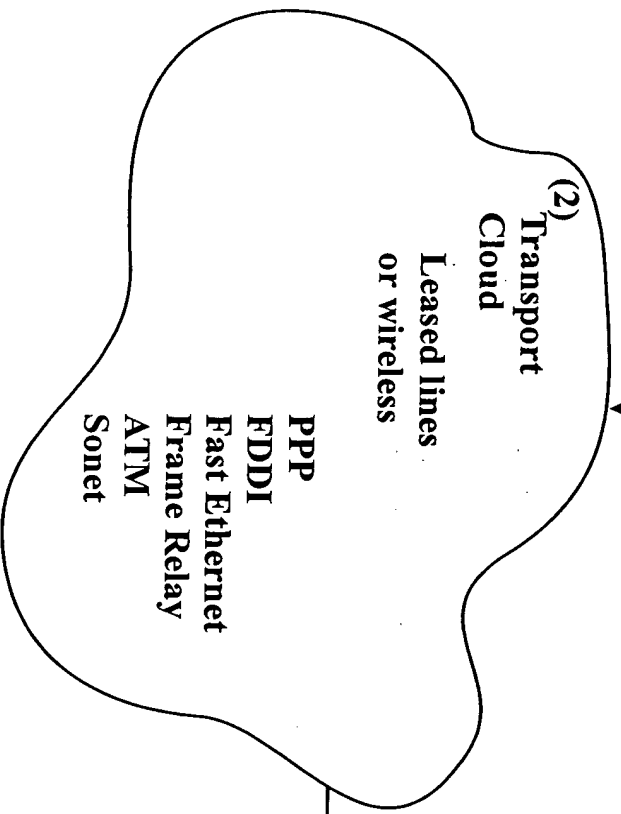
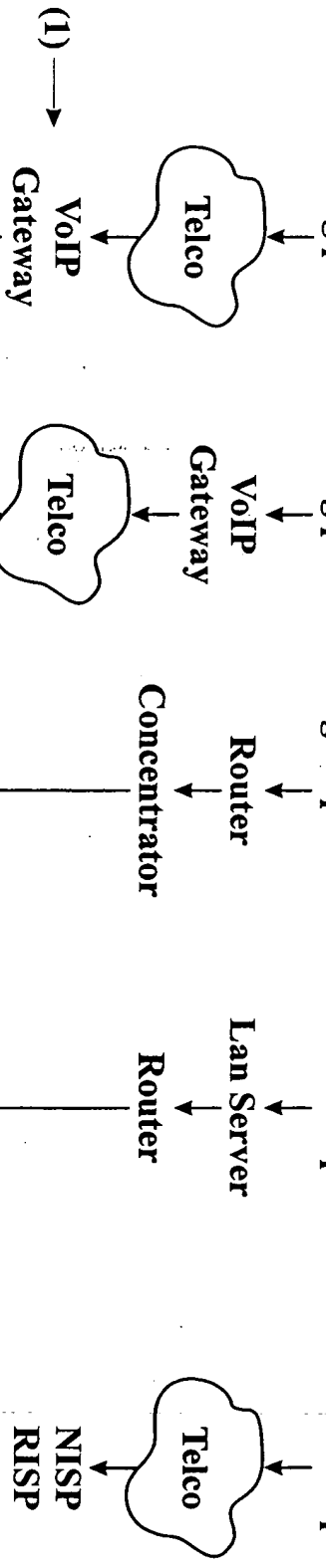


FIG 1





Analog phone      Analog phone      Digital phone      Source Computer      Source Computer



- (3) Virtual Environment Hub site
- (4) ATM, Packet and optional Voice Switch, Gateways, Concentrators, various subnets and servers that comprise a Virtual Environment Node or Hub.
  - (5) User may send, receive or manipulate a mixed-media message.
  - (6) User may place a call.

FIG 2

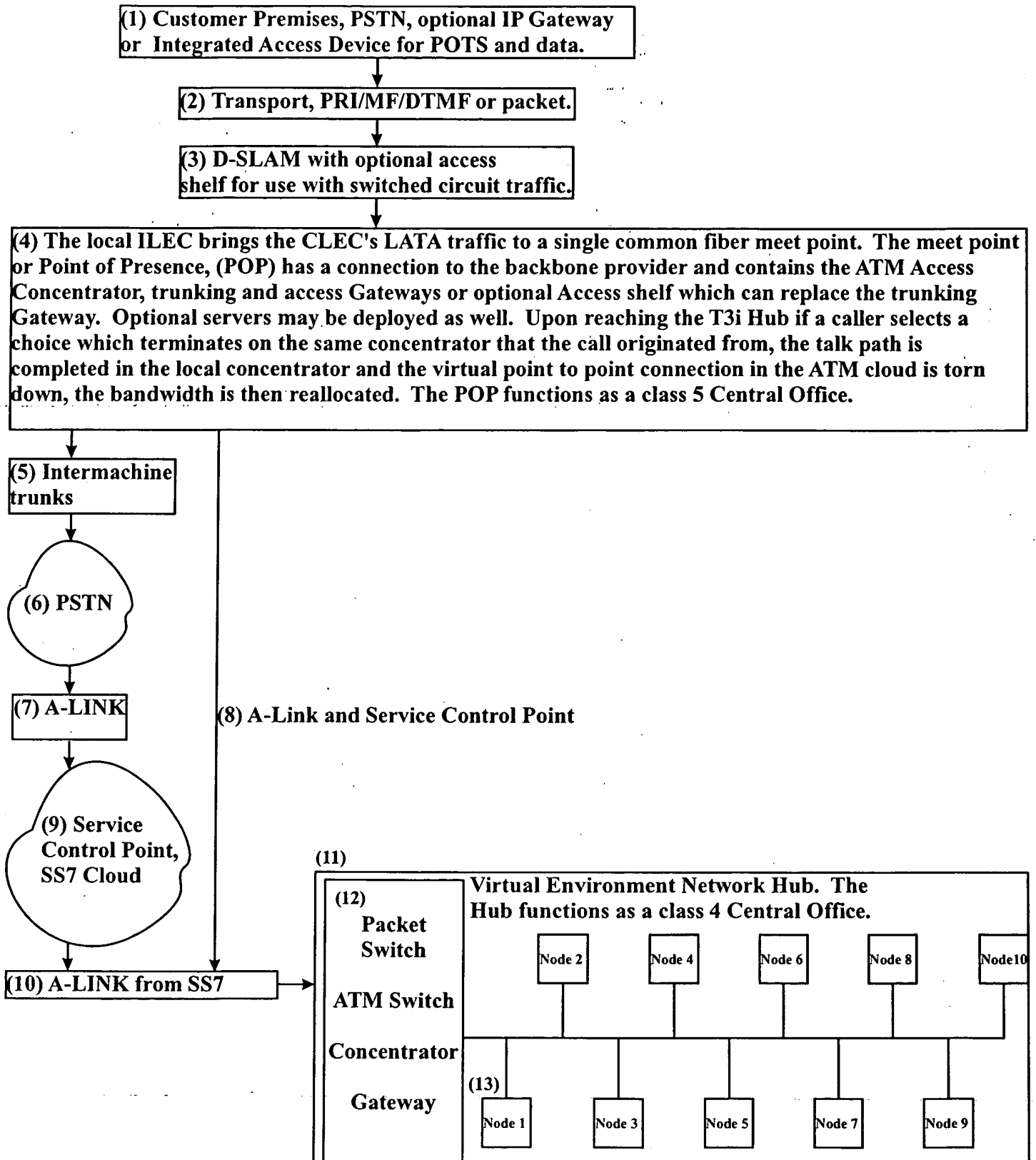


FIG 3

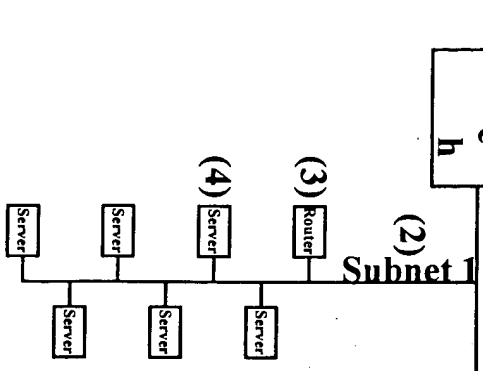
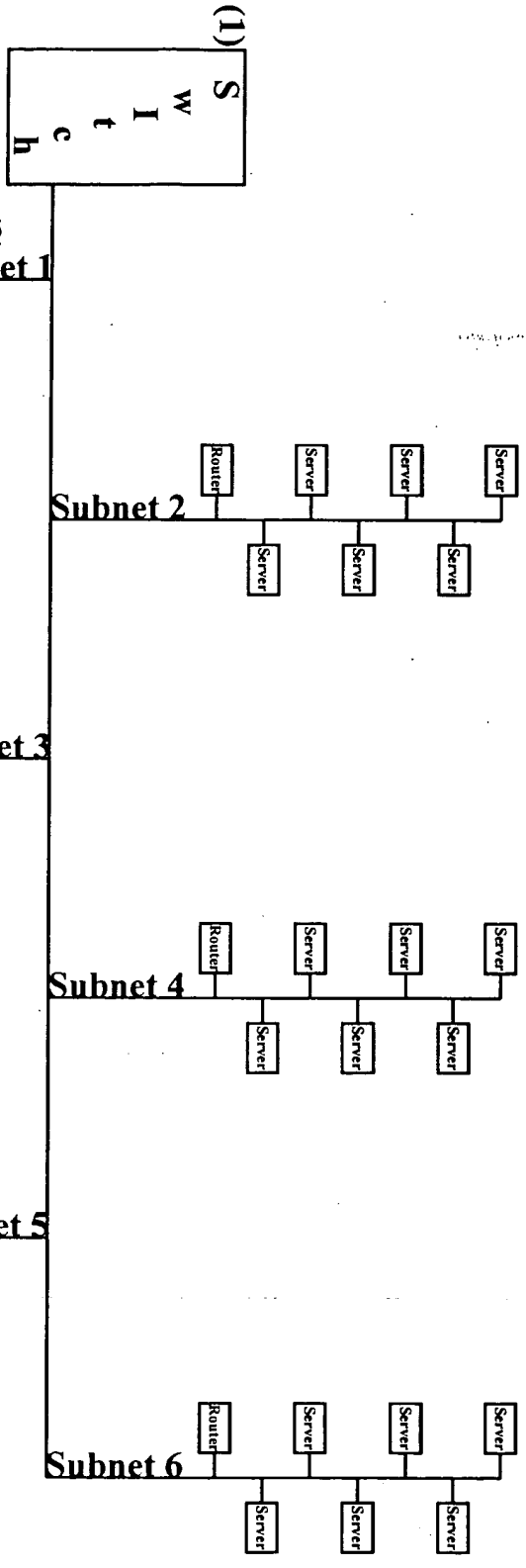
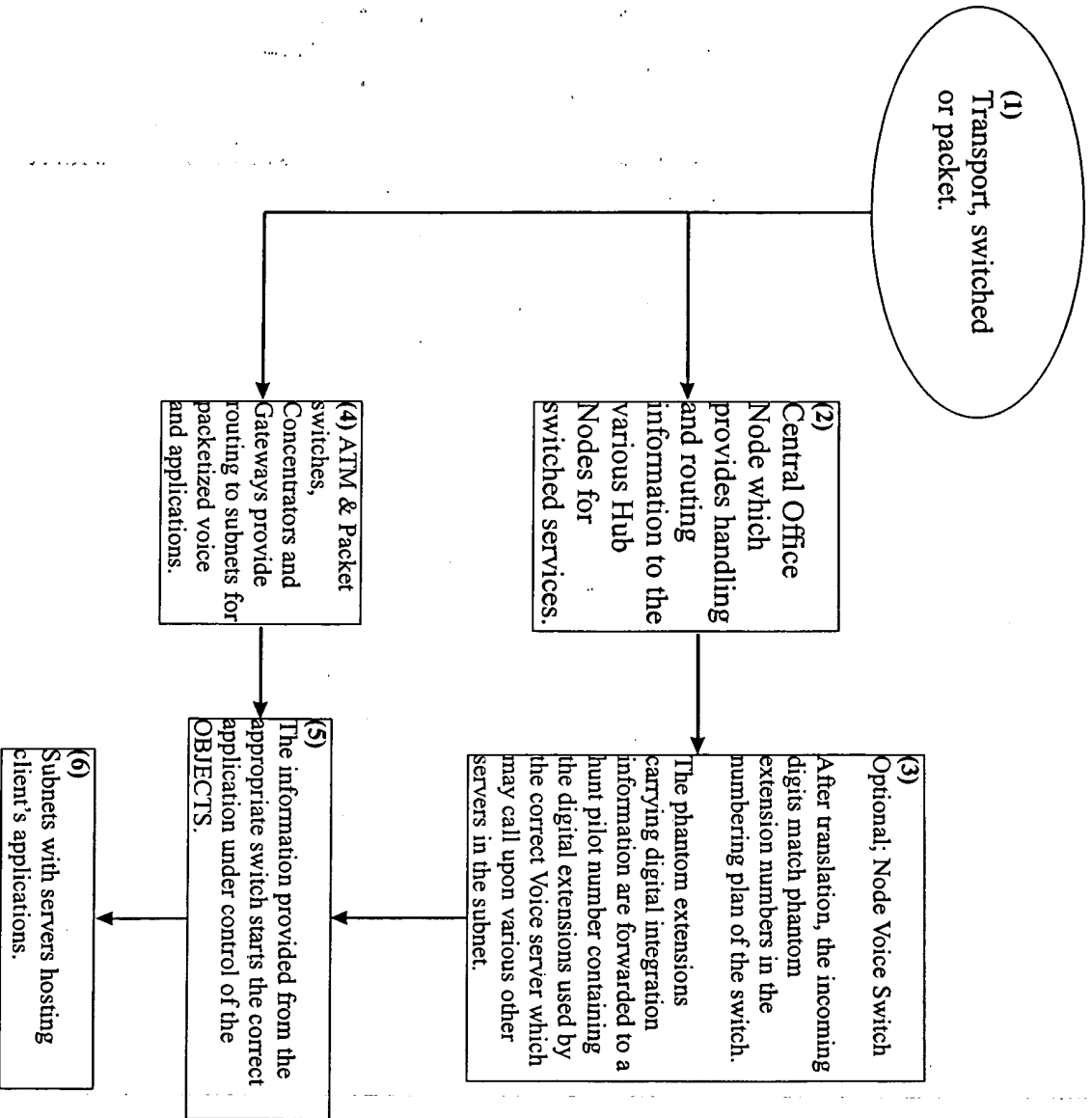
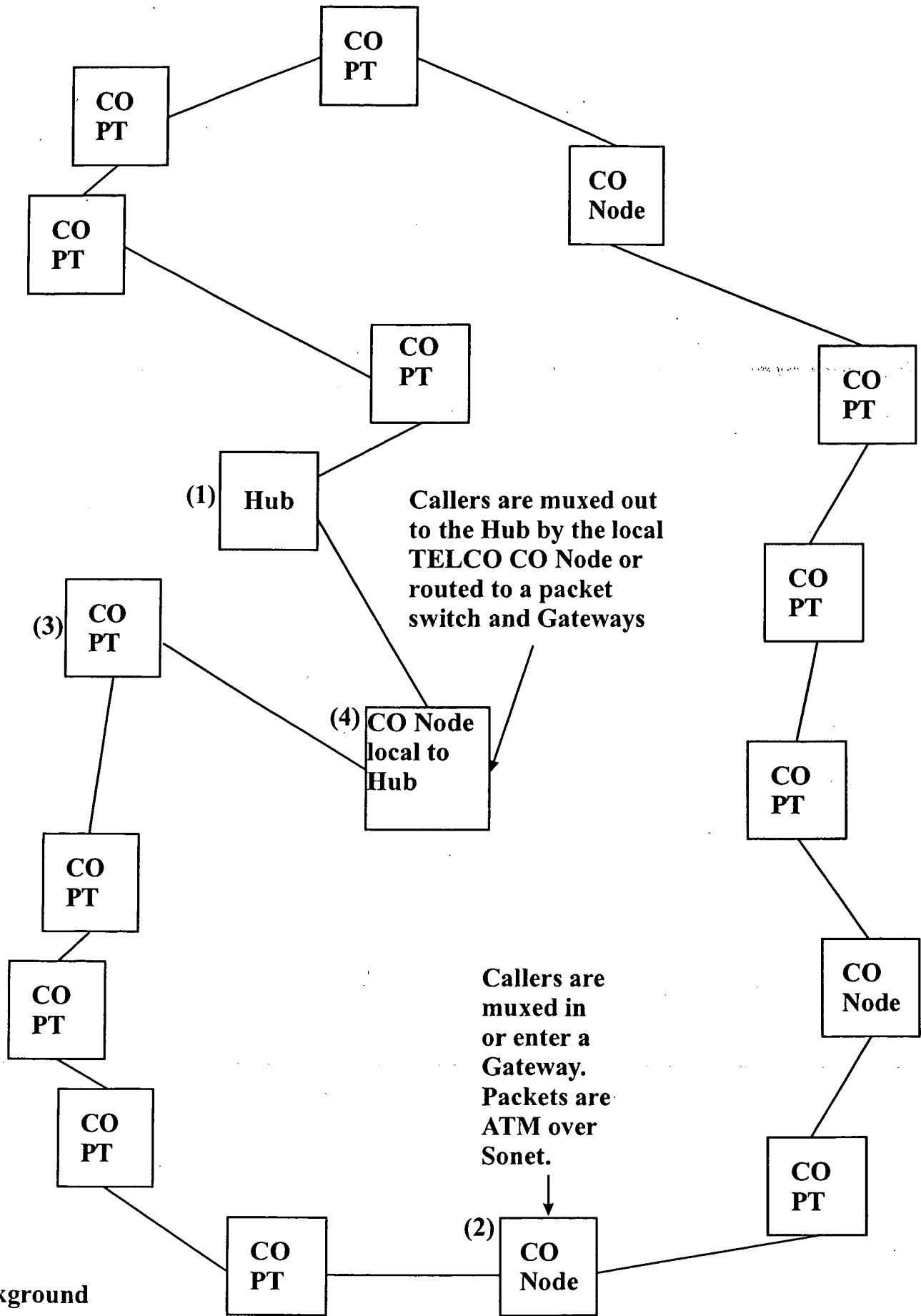


FIG 4

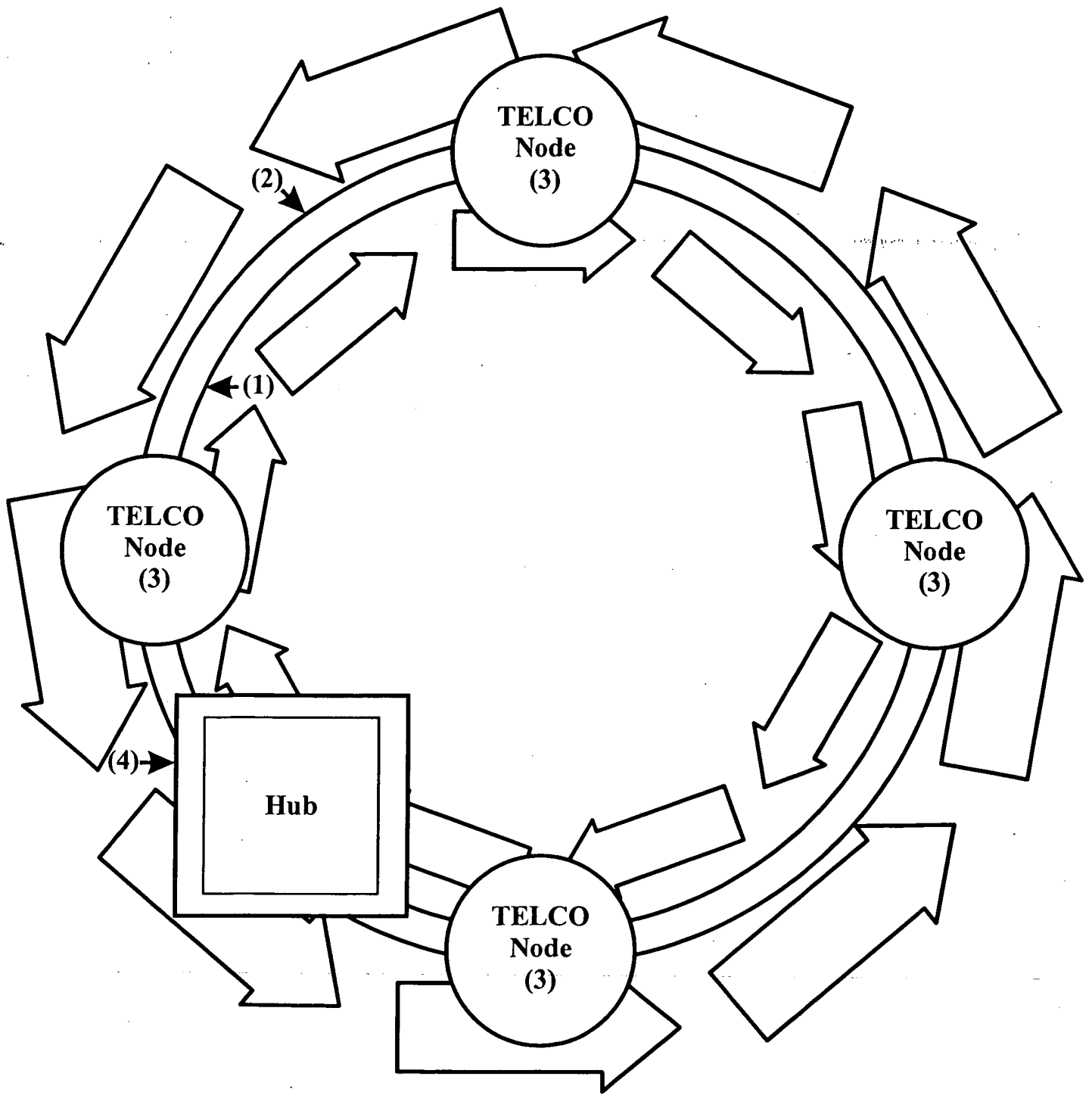


FIGS



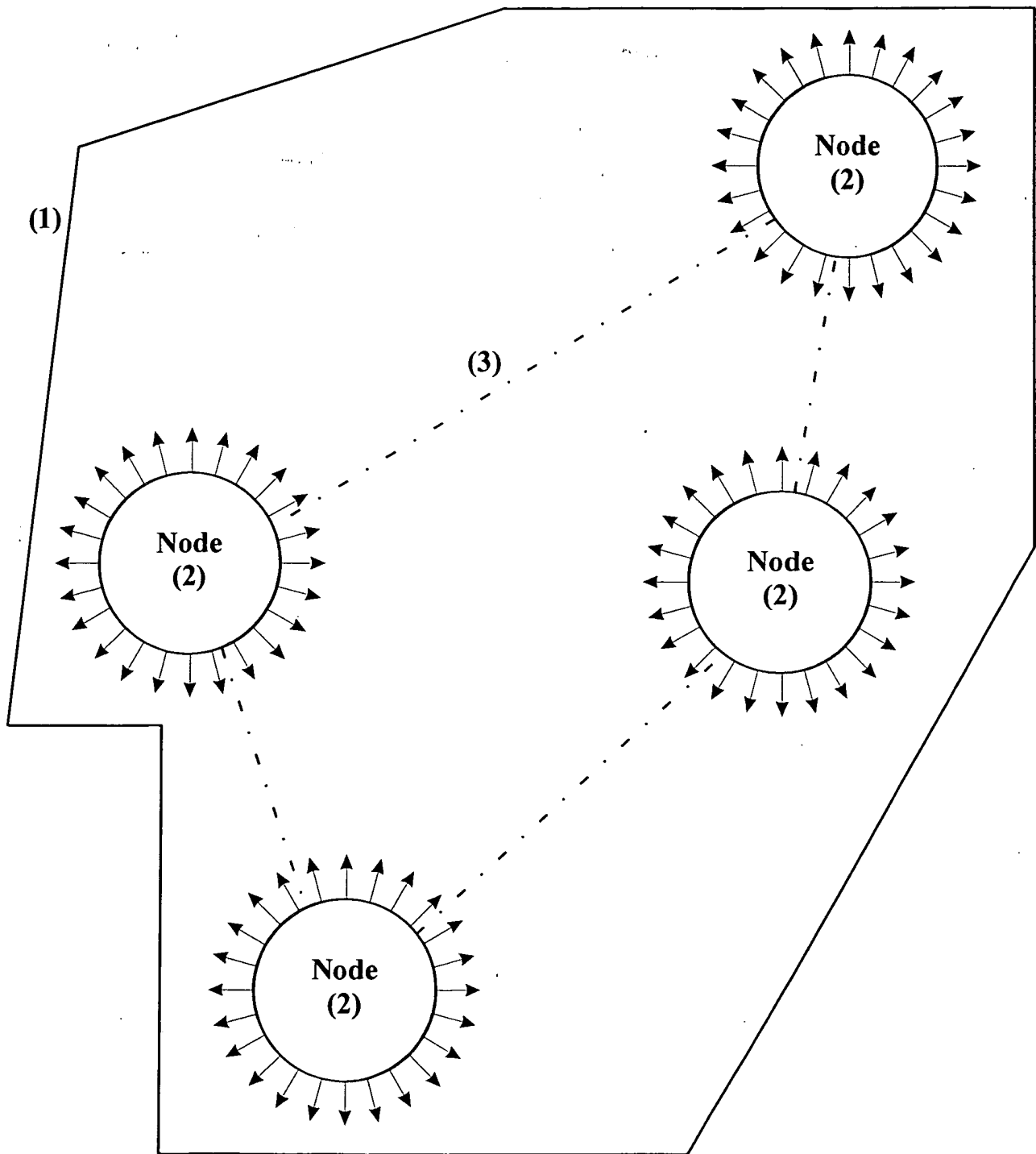
Background Art

FIG 6



Background  
Art

FIG 7



Background  
Art

FIG 8

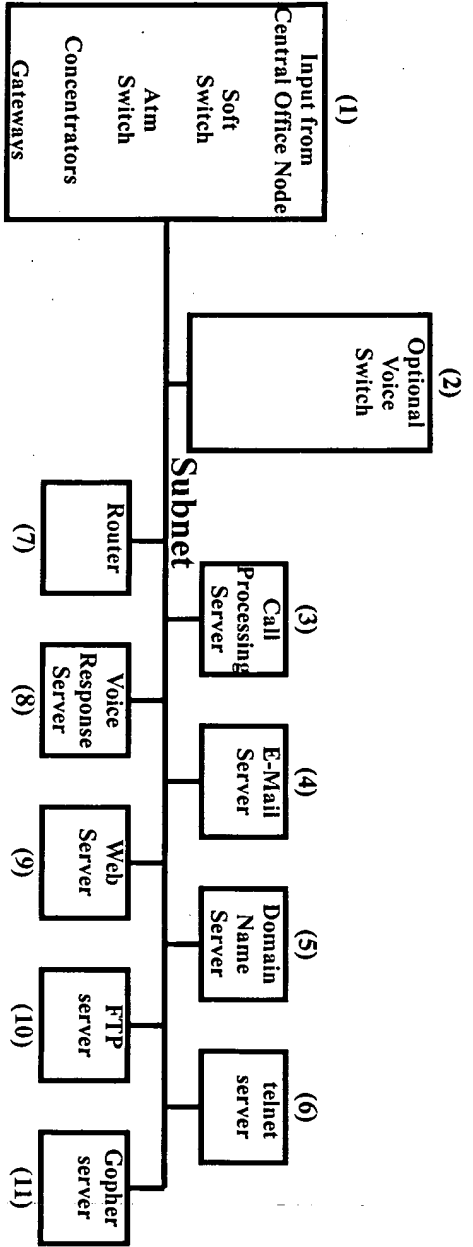


FIG 9

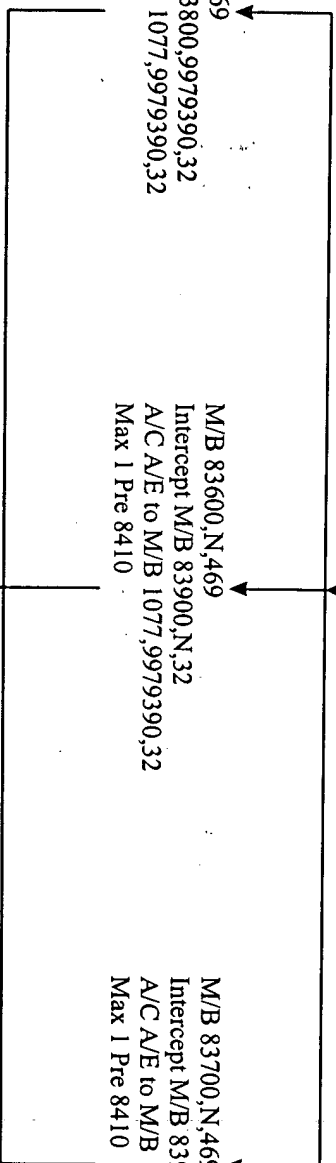


# T3i-Object Use Example

T3i-OBJECTS™

XYZ Company.  
 Contact - Name of person  
 Telephone (XXX) XXX-XXXX  
 Fax (XXX) XXX-XXXX  
 Street address  
 Suite X  
 City, State, Zip

- 1 → (XXX) XXX-XXXX
- 2 → M/B 2004,N,468 silent greeting
- 3 → -MTWTF- 08:00-12:00 N/B 83500,N,1  
 -MTWTF- 12:01-12:59 N/B 83600,N,1  
 -MTWTF- 13:00-17:00 N/B 83500,N,1  
 Default N/B 83700,N,1
- 4 → Business hours Intercept M/B 83800,9979390,32
- 5 → A/C A/E to M/B 1077,9979390,32
- 6 → Lunch and Default Intercept M/B 83900,N,32  
 A/C A/E to M/B 1077,9979390,32



7 → M/B 83500,N,469  
 Intercept M/B 83800,9979390,32  
 A/C A/E to M/B 1077,9979390,32  
 Max 1 Pre 8410

M/B 83600,N,469  
 Intercept M/B 83900,N,32  
 A/C A/E to M/B 1077,9979390,32  
 Max 1 Pre 8410

M/B 83700,N,469  
 Intercept M/B 83900,N,32  
 A/C A/E to M/B 1077,9979390,32  
 Max 1 Pre 8410

M/B 84101,N,469  
 Business hours intercept M/B 83800,9979390,32  
 A/C A/E to M/B 1077,9979390,32  
 Lunch and Default intercept M/B 83900,N,32  
 A/C A/E to M/B 1077,9979390,32

FIG 10

Application located in Node 1  
 Default security code KUNIK or 58645  
 Voice Doreen Panico  
 User transfer on all trunks. Call forward on R/N/A on all trunks.

## CLAIMS

1. A method for configuring a communications system having a CALL PULL-BACK mechanism, comprising the steps of:

- 5           populating a digital repository with preprogrammed software objects;  
              selecting a subset of the preprogrammed software objects from the digital repository;  
              customizing the subset of preprogrammed software objects with user defined  
parameters so as to implement predetermined functions when executed by a processor;  
              mapping the predetermined functions to corresponding operating system inputs; and  
10           performing the determined functions when initiated by the corresponding  
operating system inputs.

2. The method of Claim 1, wherein the predetermined functions are associated with said CALL PULL-BACK mechanism.

3. The method of Claim 1, further comprising the step of:

- 15           documenting the preprogrammed software objects including information about the  
predetermined functions.

4. The method of Claim 3, further comprising the step of:

documenting the preprogrammed software objects, after being customized, as  
drawings including the user defined parameters.

- 20           5. The method of Claim 1, further comprising the step of:

packaging the preprogrammed software objects as a consumer product.

6. The method of Claim 5, further comprising the step of:

offering to sell the packaged preprogrammed software objects to consumers.

7. The method of Claim 5, wherein said consumer product including a computer readable medium.

8. The method of Claim 5, wherein said consumer product further includes documentation about the preprogrammed software objects.

5           9. The method of Claim 6, wherein:  
the offering to sell step comprises advertising for sale the consumer product over the Internet.

10           10. A configurable communications system, comprising:  
a digital repository populated with preprogrammed software objects configured to perform predetermined functions that are customizable by user defined parameters when executed by a processor;  
input devices configured to receive the user defined parameters;  
the processor; and  
a computer readable medium encoded with processor readable instructions that when  
15           executed by the processor implement,  
a call processing mechanism configured to perform the predetermined functions as customized by the user defined parameters.

11. The system of Claim 10, wherein the predetermined functions are associated with a CALL PULL-BACK mechanism.

20           12. The system of Claim 10, wherein:  
the digital repository being a database hosted on at least one of a computer readable medium and printed document.

13. The system of Claim 10, wherein:  
the call processing mechanism being configured to provide multi-media messaging including at least one of voice mail, e-mail, and facsimile.

14. The system of Claim 10, further comprising:  
5 a communication interface for receiving data over at least one of a Sonet Ring network and a meshed network.

15. The system of Claim 14, wherein the at least one of a Sonet Ring network and a meshed network being configured with ATM as a transport for packetized traffic.

16. A computer program product, comprising:  
10 a computer storage medium and a computer program code mechanism embedded in the computer storage medium for causing a processor to implement a call processing system, the computer program code mechanism comprising:

a first computer code device configured to create a library of preprogrammed software objects capable of performing predetermined functions;

15 a second computer code device configured to store the library of preprogrammed software objects in a digital repository;

a third computer code device configured to select a subset of preprogrammed software objects from the digital repository based on a preselected portion of the predetermined functions;

20 a fourth computer code device configured to customize the selected preprogrammed software objects based on user defined parameters; and

a fifth computer code device configured to process calls based on the selected programmed software objects as customized with the user defined parameters.

17. The computer program product of Claim 16, wherein the predetermined functions are associated with a CALL PULL-BACK mechanism.

18. The computer program product of Claim 16, wherein the digital repository comprises a database.

5 19. The computer program product of Claim 18, wherein said database being hosted on at least one of a computer readable medium and a printed document.

20. The computer program product of Claim 16, wherein said predetermined functions being a user customized call pull-back operation.

10 21. The computer program product of Claim 16, wherein said user defined parameters being communication system attributes.

22. A system for configuring a communications system having a CALL PULL-BACK mechanism, comprising:

means for populating a digital repository with preprogrammed software objects;

15 means for selecting a subset of the preprogrammed software objects from the digital repository;

means for customizing the subset of preprogrammed software objects with user defined parameters so as to implement predetermined functions when executed by a processor;

20 means for mapping the predetermined functions to corresponding operating system inputs; and

means performing the predetermined functions when initiated by the corresponding operating system inputs.

23. The system of Claim 22, wherein the predetermined functions are associated with a CALL PULL-BACK mechanism.

25

24. The system of Claim 22, further comprising:

means for disaster resistant communications.

25. The system of Claim 22, further comprising:

means for transporting traffic between nodes when an outbound footprint allowing

5 users node access as a local call is exceeded.

26. The system of Claim 22, further comprising:

means for locking up an allocation of bandwidth needed in a virtual point to point connection during call set.

27. The system of Claim 22, further comprising:

10 means for tearing down an ATM cloud providing a virtual point to point connection after determining that a call terminates on a same concentrator as the call was originated on.

28. The system of Claim 22, further comprising:

means for controlling numbering and forwarding from digital transport edge devices placed on or near a customer's premises.

15 29. The system of Claim 22, further comprising:

means for record keeping for each client's configuration of the subset of preprogrammed software objects.

30. The system of Claim 22, further comprising:

means for documenting spoken verbiage and member information used in

20 customizing the subset of preprogrammed software objects.

---

31. The system of Claim 22, further comprising:

means for documenting the subset of preprogrammed software objects used in the system.

## ABSTRACT OF THE DISCLOSURE

A method, system, and computer program product for creating, maintaining and destroying virtual environments. Preprogrammed software objects that perform predetermined functions are created and stored in a repository, the desired objects are  
5 selected and configured with user defined parameters to create a customized call processing system. The use of preprogrammed software objects allows the rapid and accurate configuration, manipulation and destruction of virtual environments that networks subscribers together, processes calls, enables messaging, and provides disaster avoidance.

10

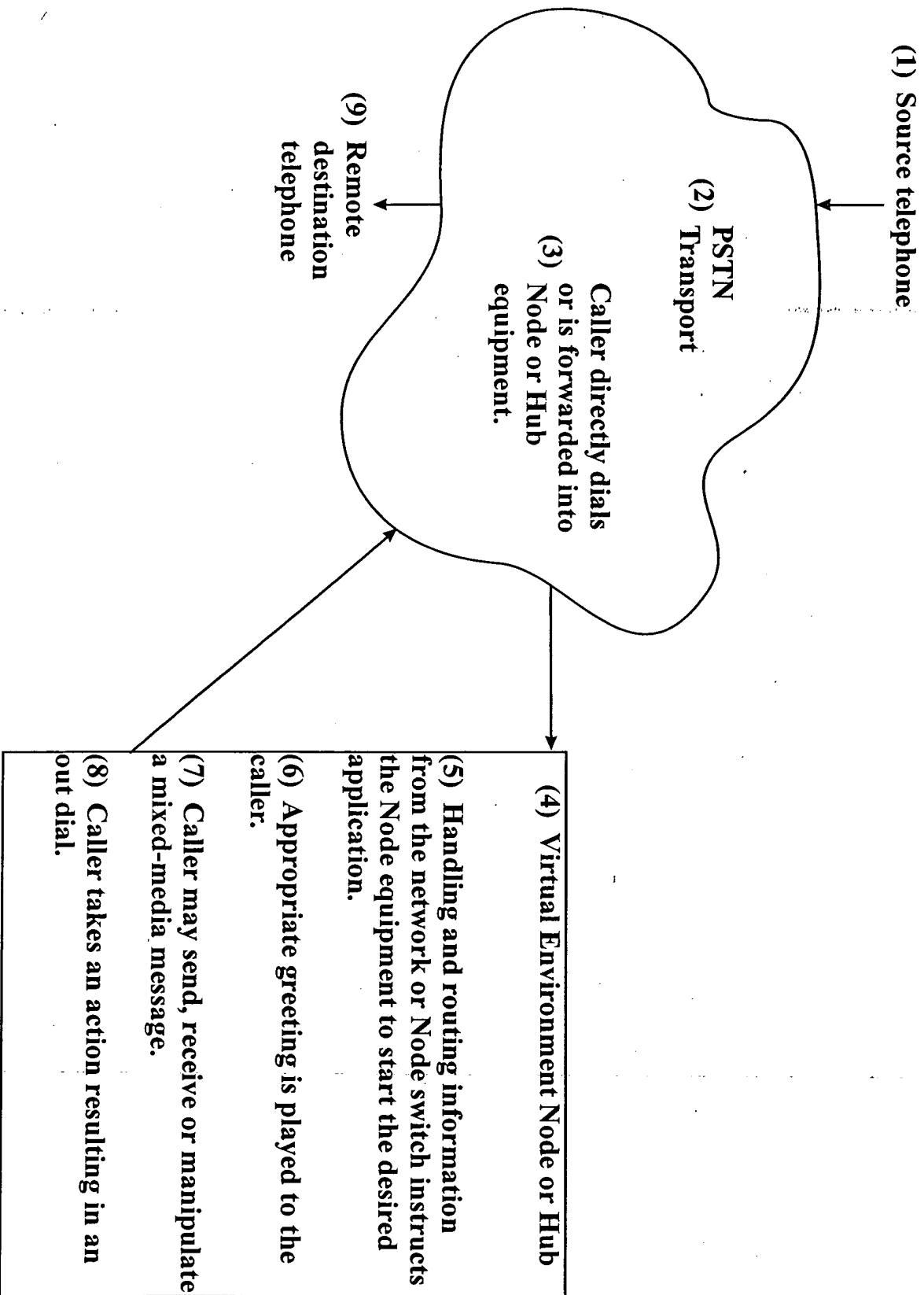


FIG 1





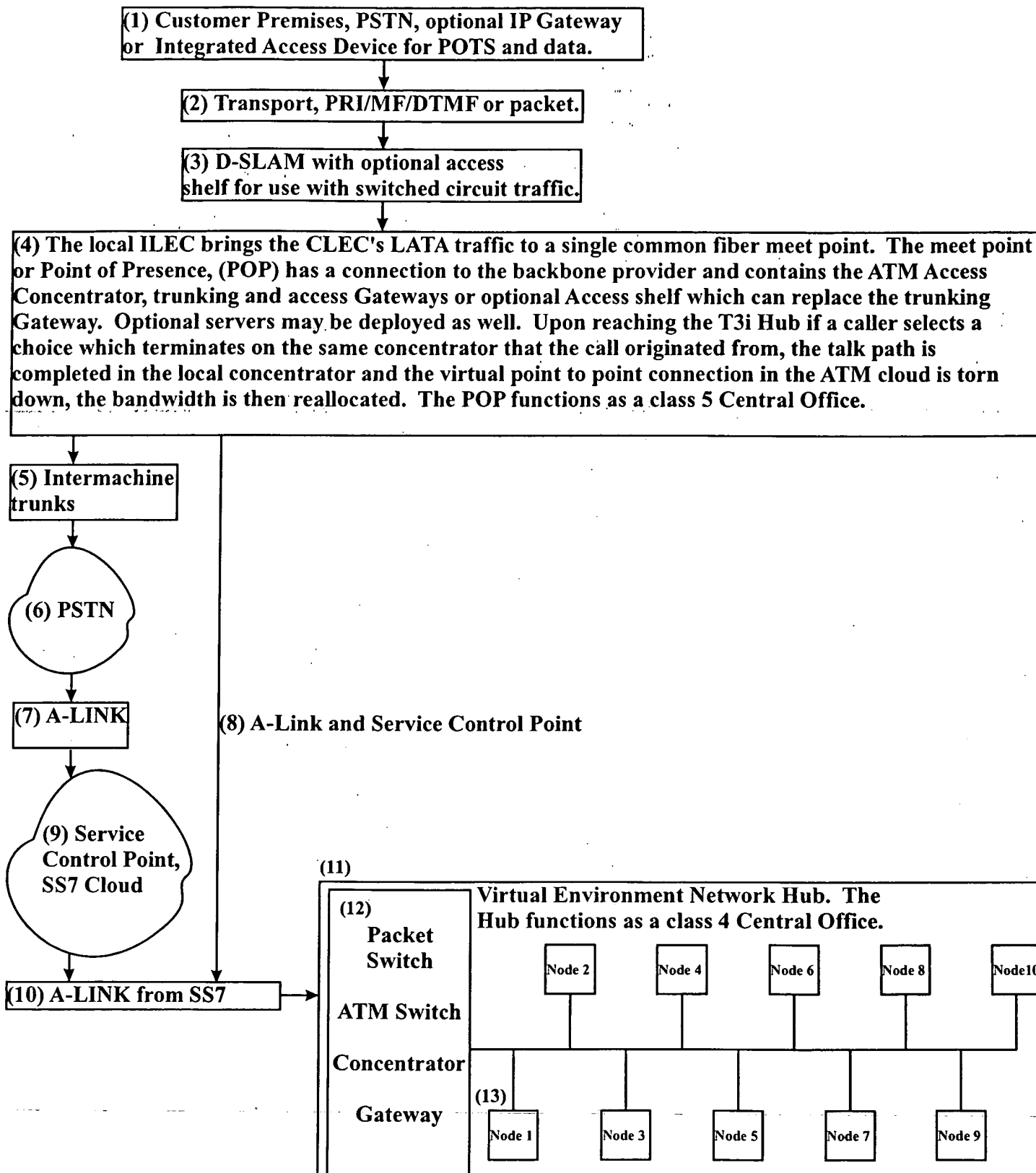


FIG 3

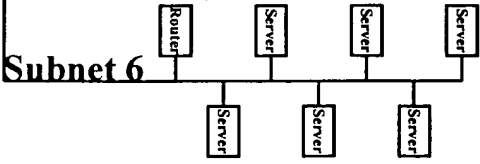
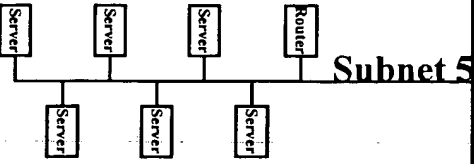
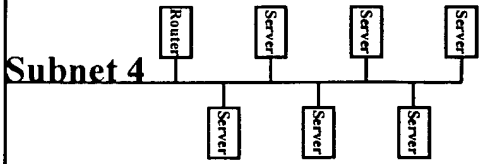
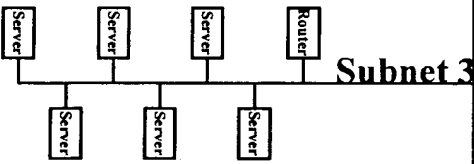
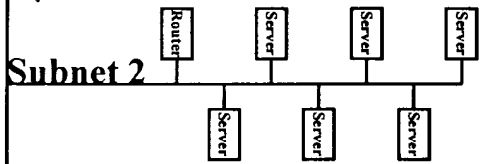
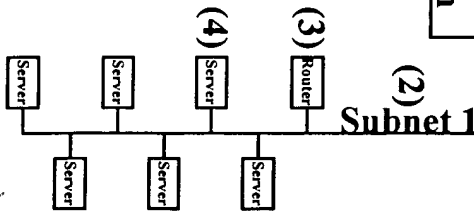
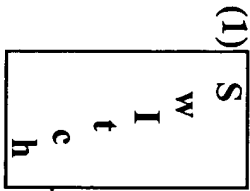


FIG 4

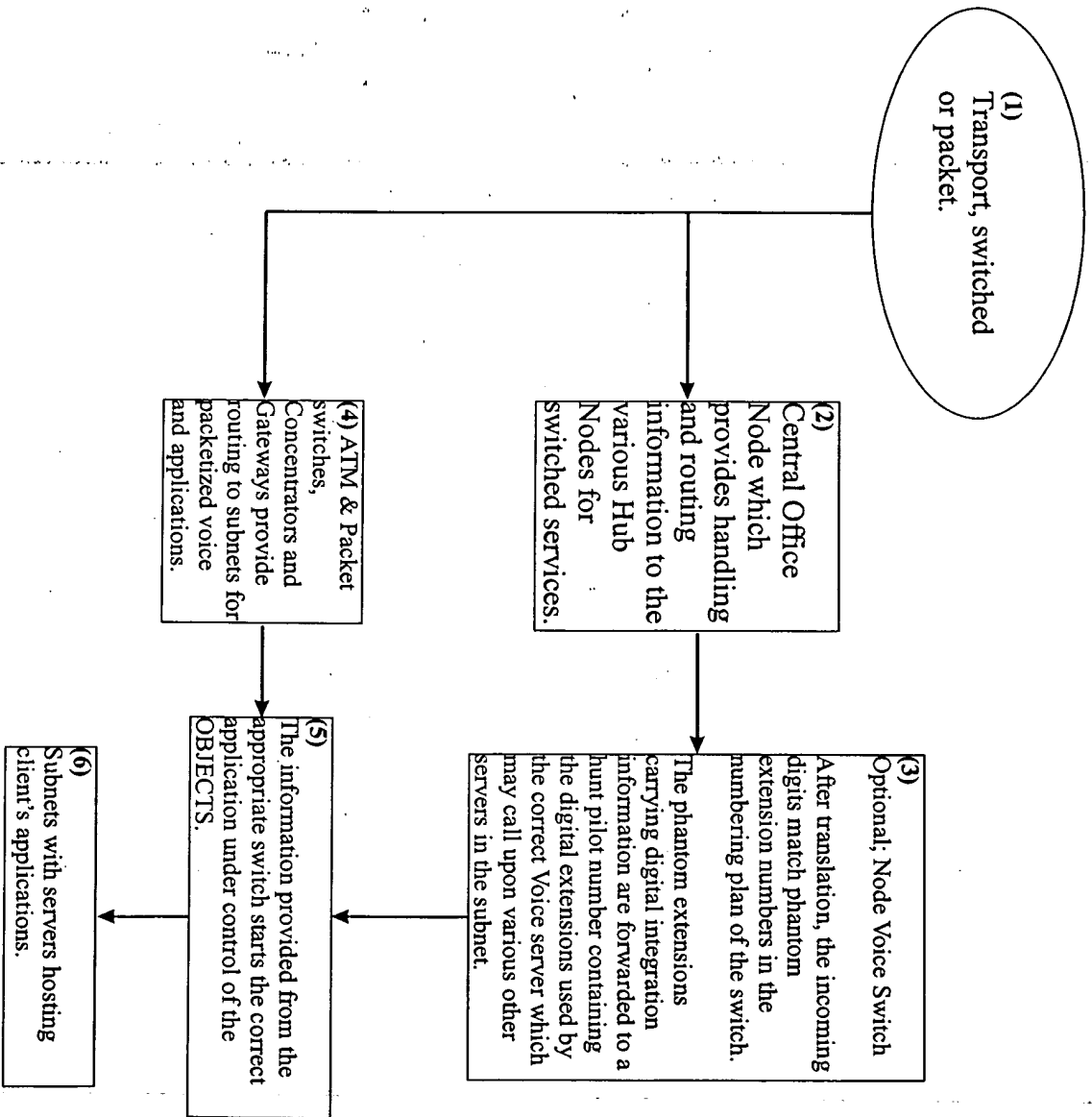
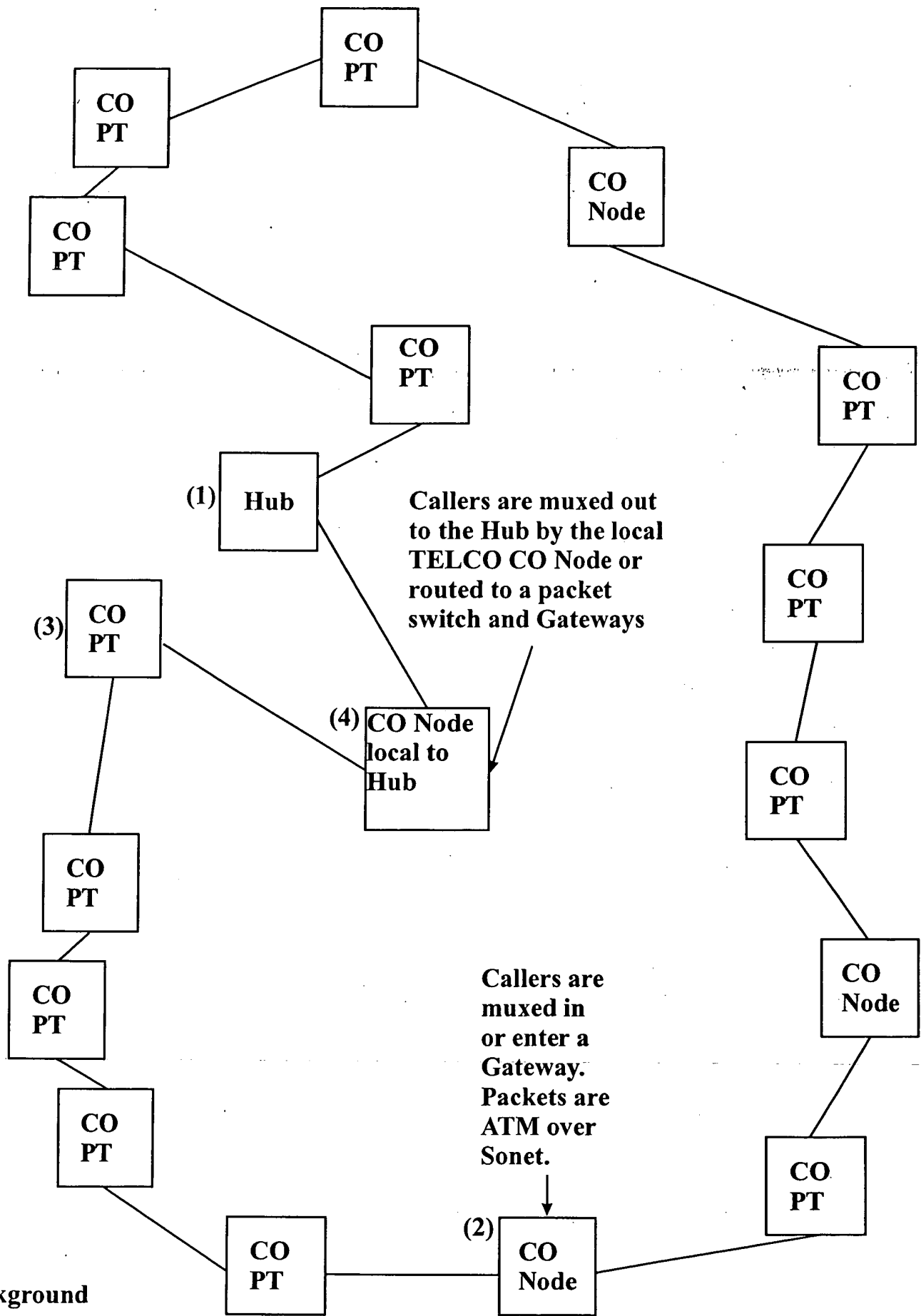
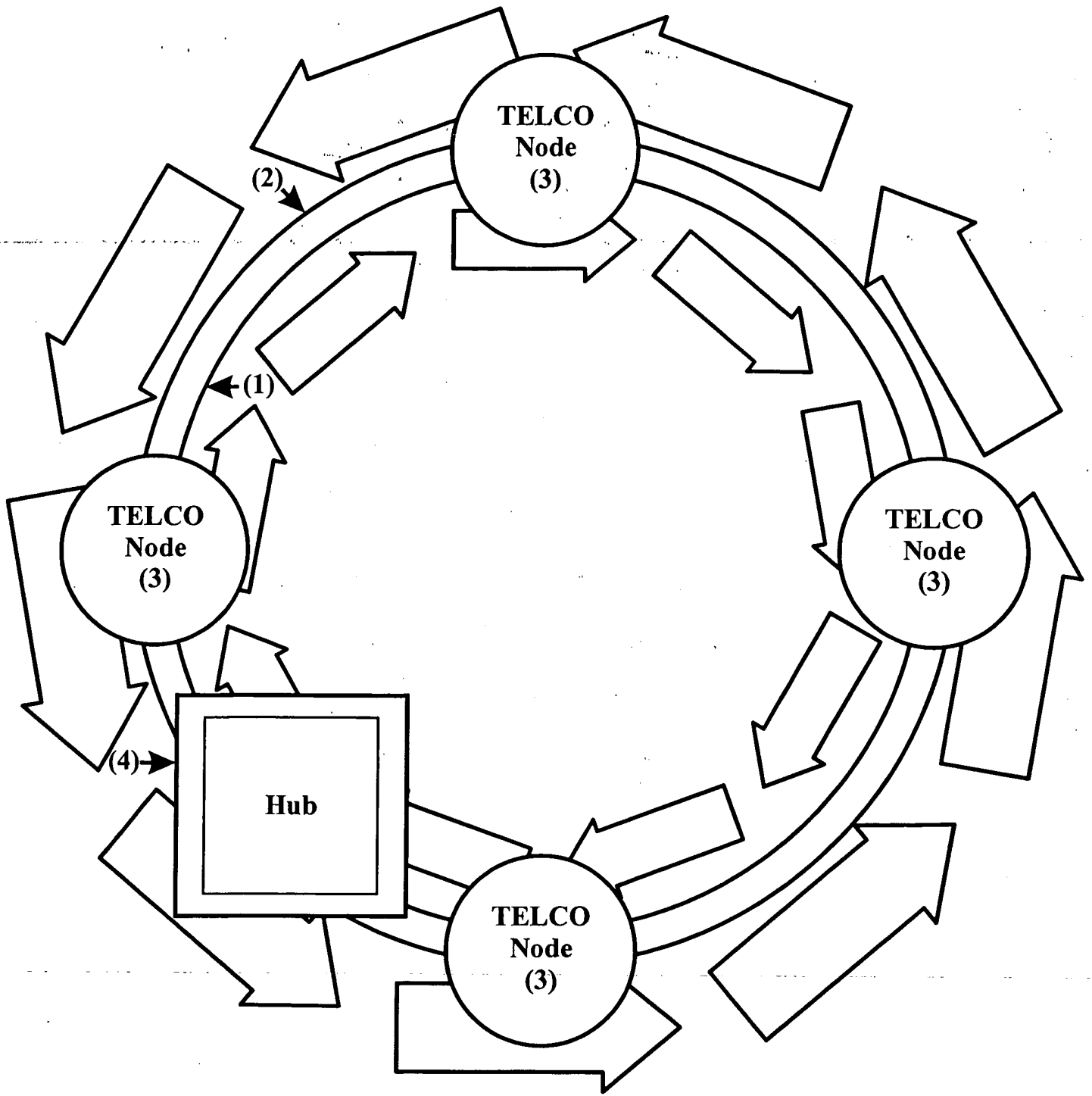


FIG 5



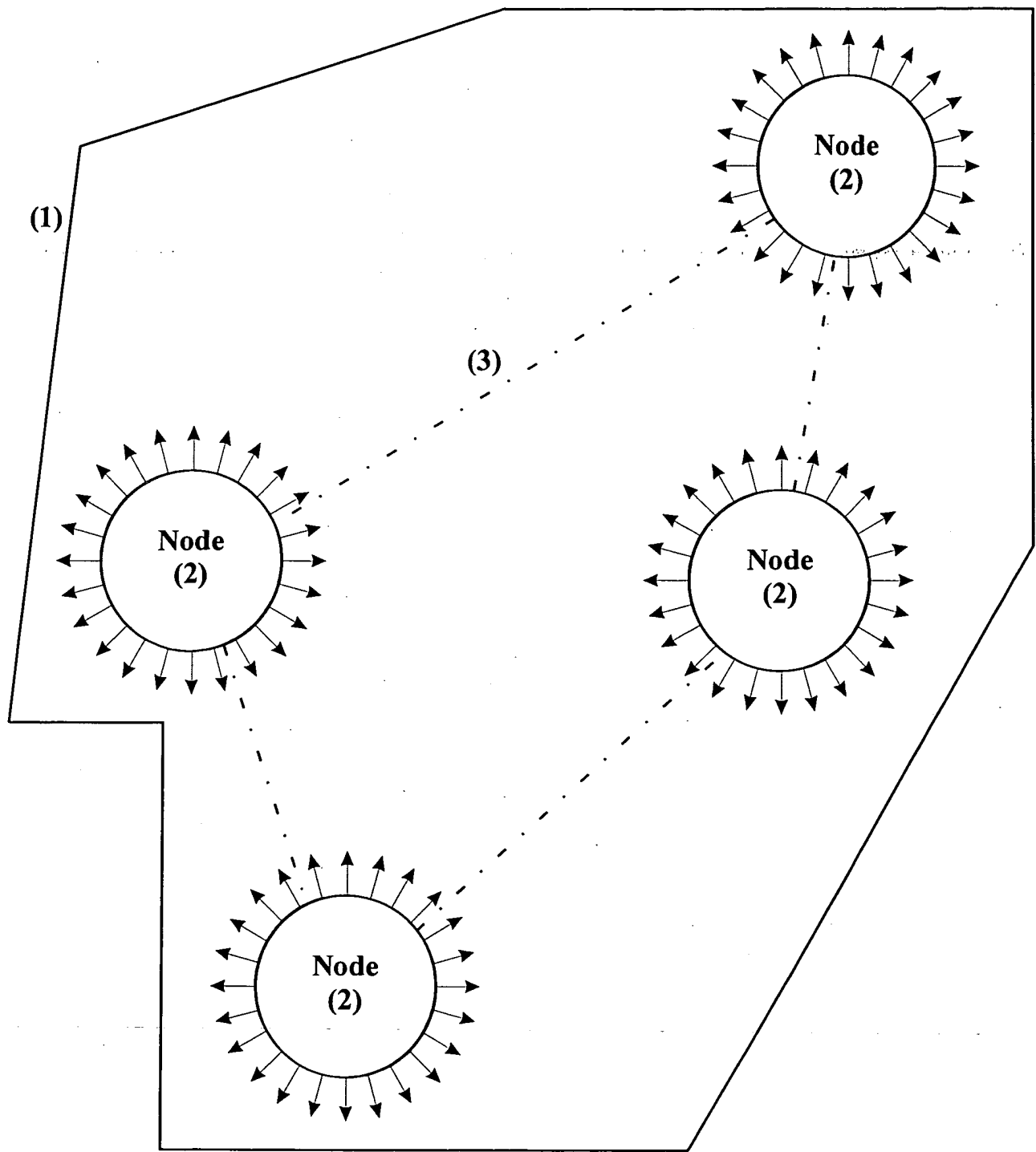
Background Art

FIG 6



Background  
Art

FIG 7



Background  
Art

FIG 8

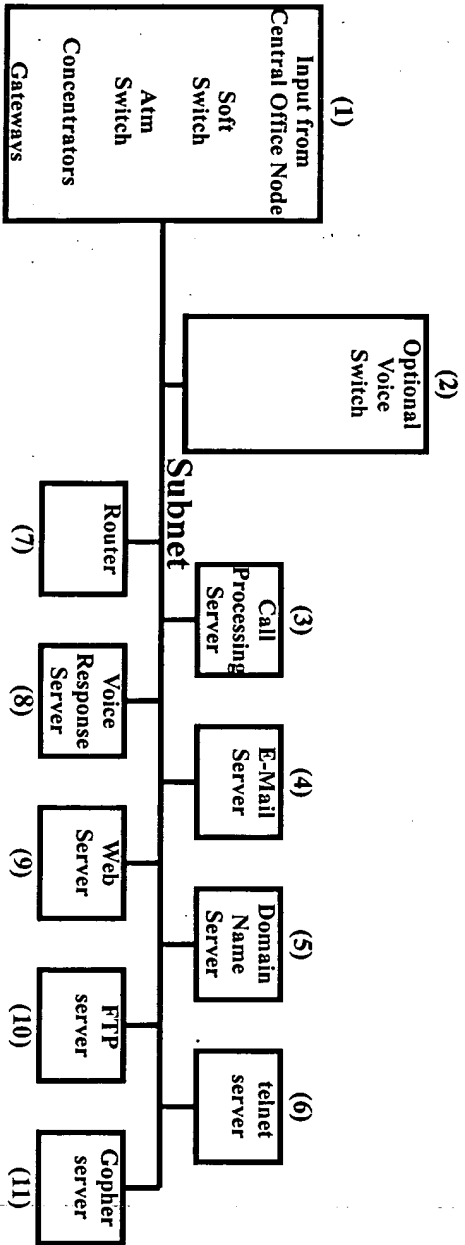


FIG 9



# T3i-Object Use Example

T3i-OBJECTS™

XYZ Company.  
 Contact - Name of person  
 Telephone (XXXX) XXXX-XXXX  
 Fax (XXXX) XXXX-XXXX  
 Street address  
 Suite X  
 City, State, Zip

- 1 → (XXXX) XXXX-XXXX
- 2 → M/B 2004,N,468 silent greeting
- 3 → -MTWTF- 08:00-12:00 N/B 83500,N,1  
 -MTWTF- 12:01-12:59 N/B 83600,N,1  
 -MTWTF- 13:00-17:00 N/B 83500,N,1  
 Default N/B 83700,N,1
- 4 → Business hours Intercept M/B 83800,9979390,32
- 5 → A/C A/E to M/B 1077,9979390,32
- 6 → Lunch and Default Intercept M/B 83900,N,32  
 A/C A/E to M/B 1077,9979390,32

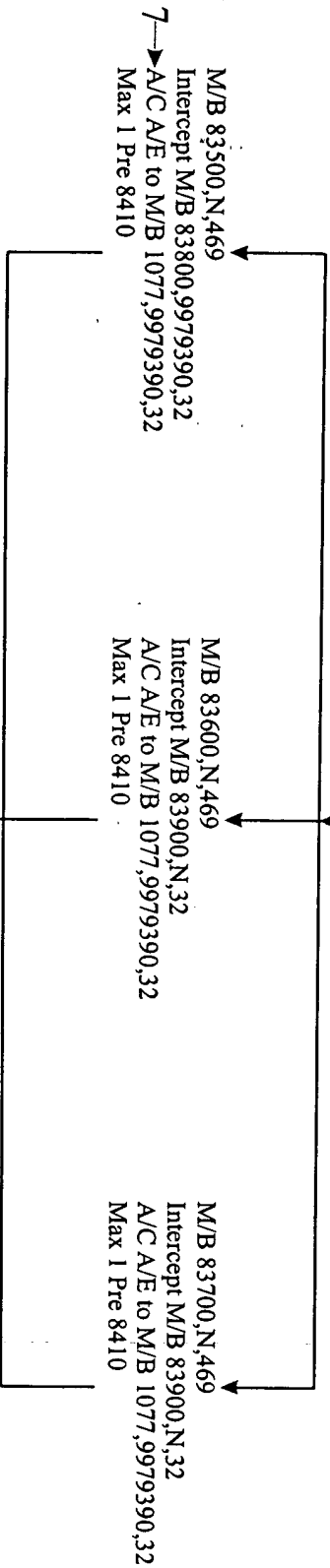


FIG 10

Application located in Node 1  
 Default security code KUNIK or 58645  
 Voice Doreen Panico  
 User transfer on all trunks. Call forward on R/N/A on all trunks.

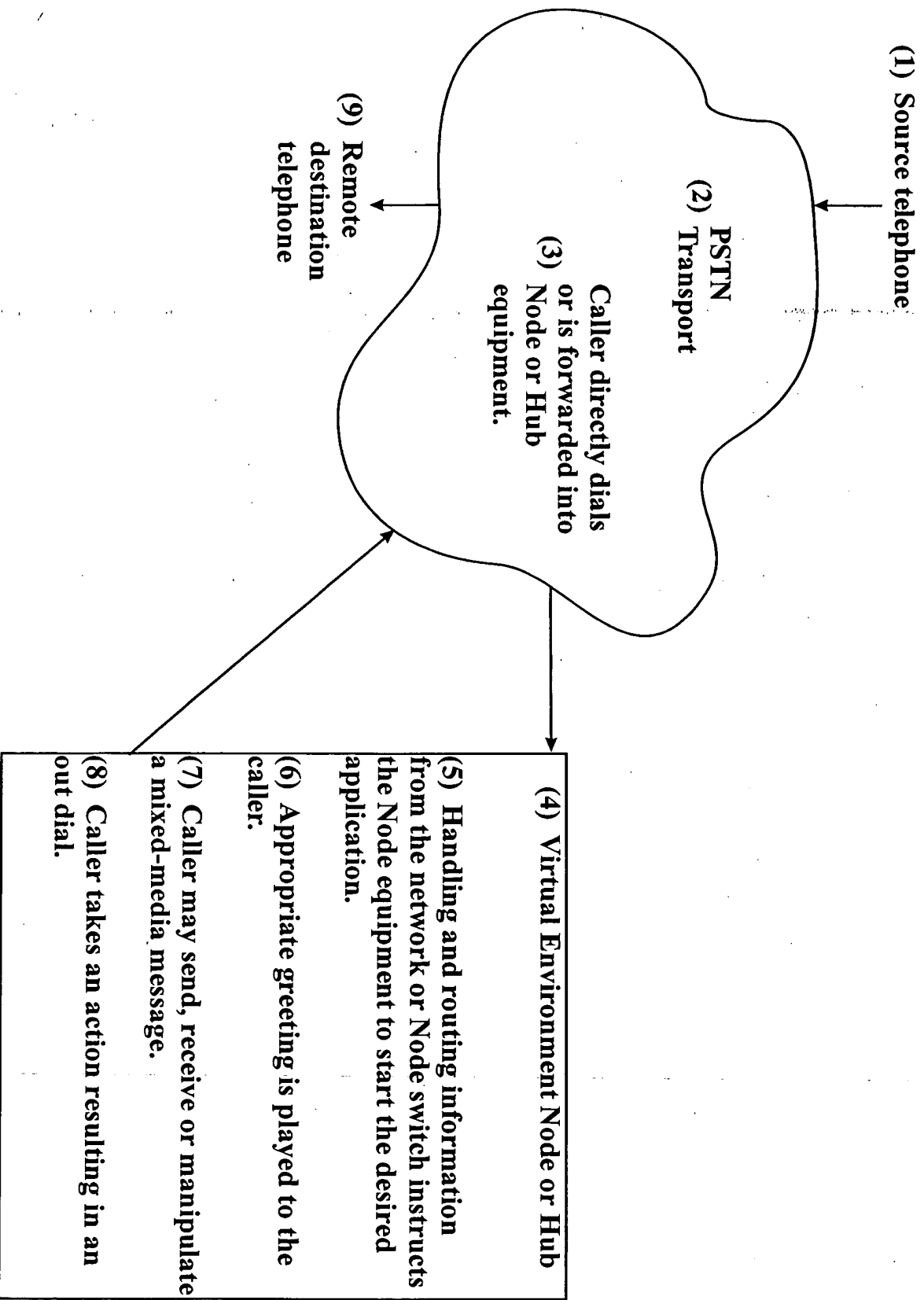


FIG 1

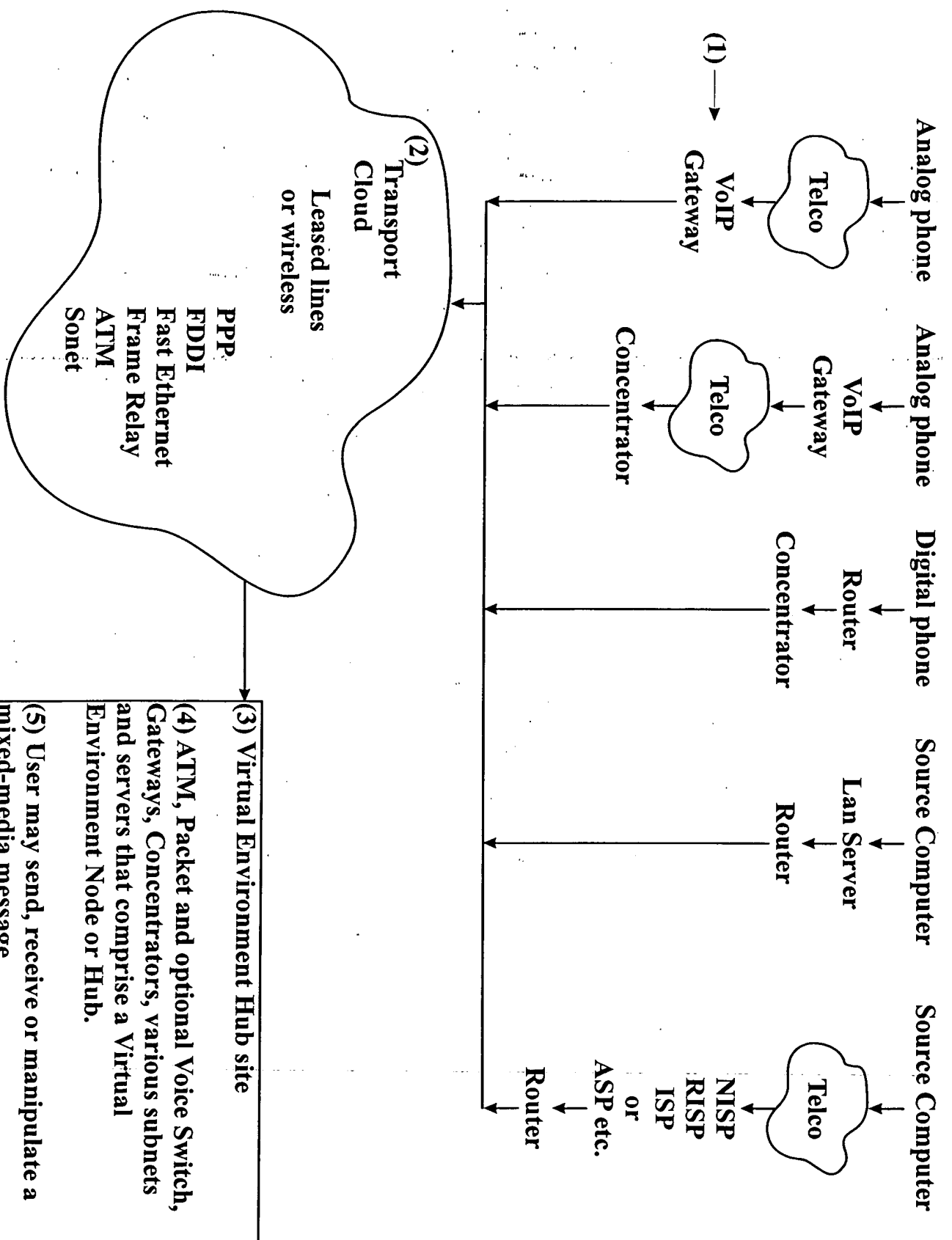


FIG 2

Background Art

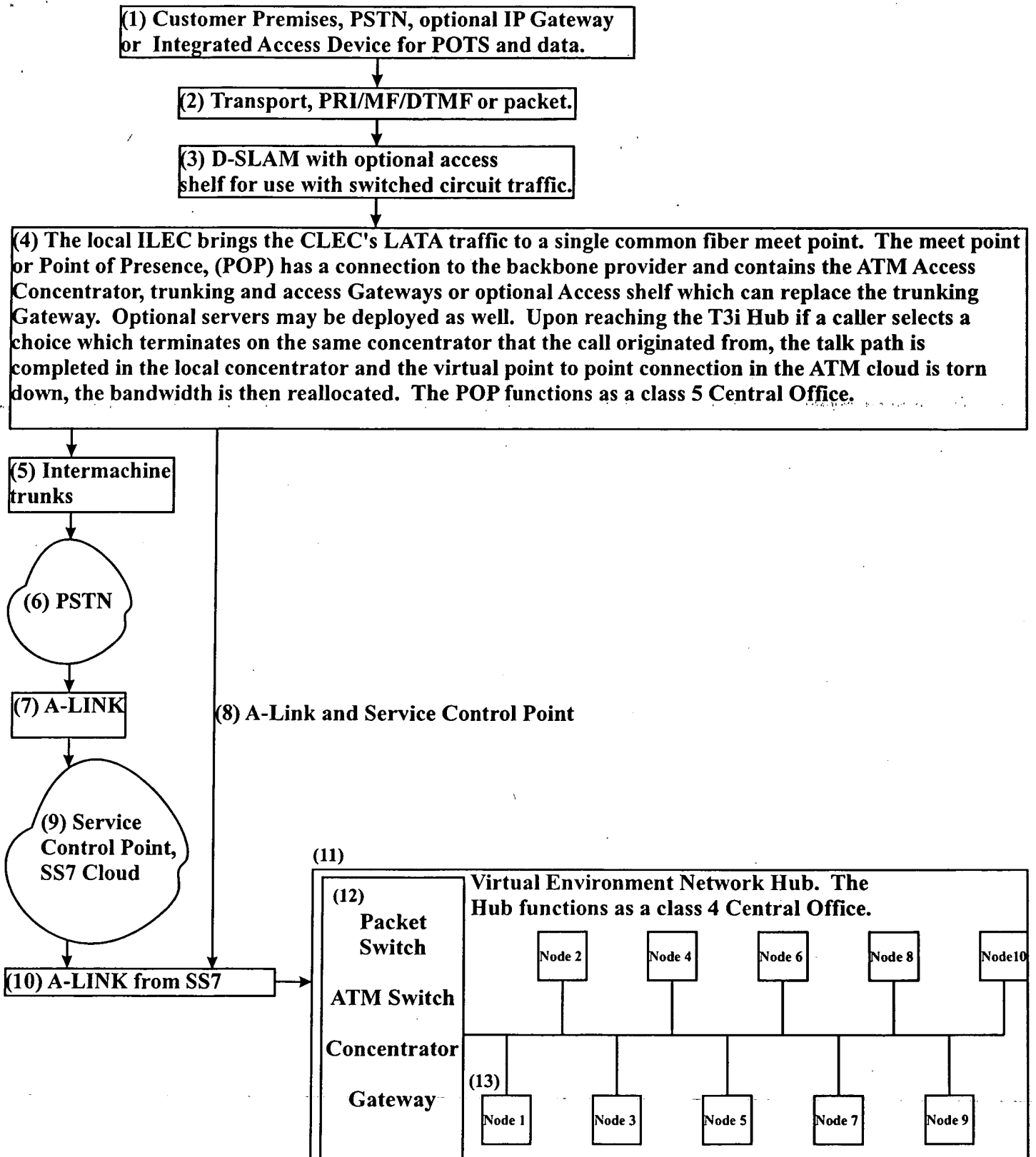


FIG 3

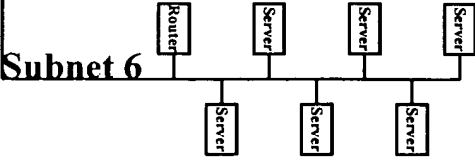
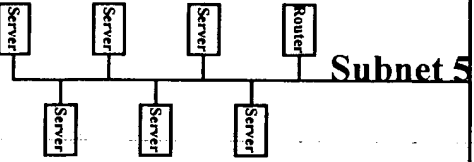
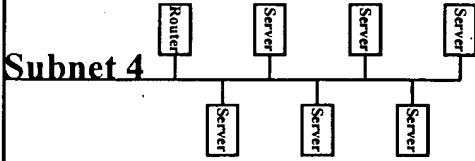
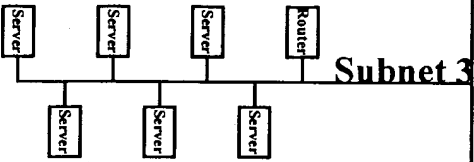
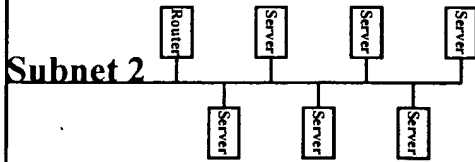
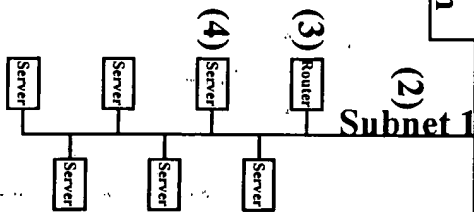
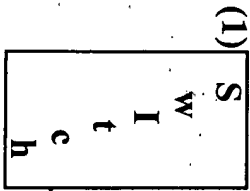
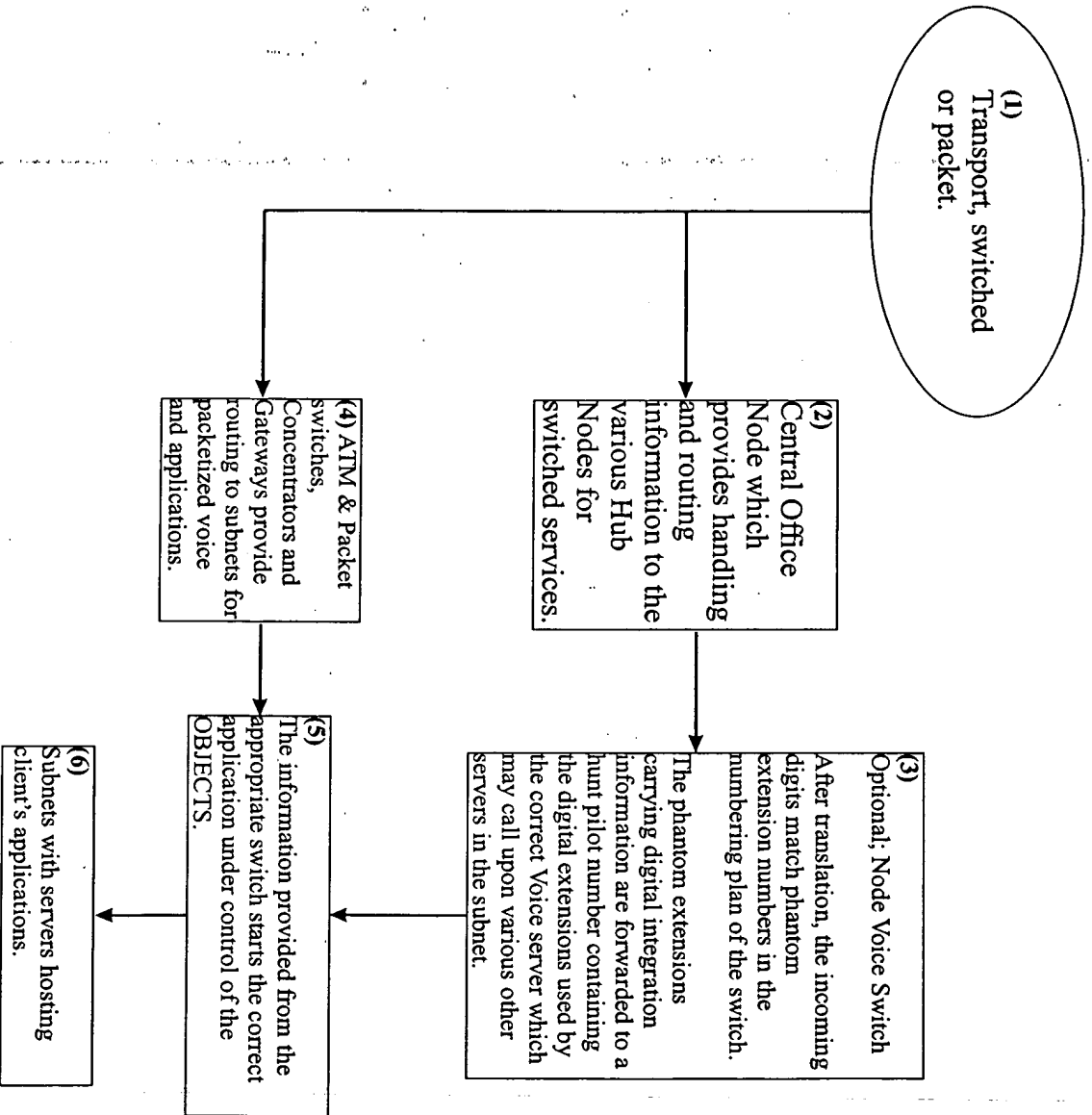
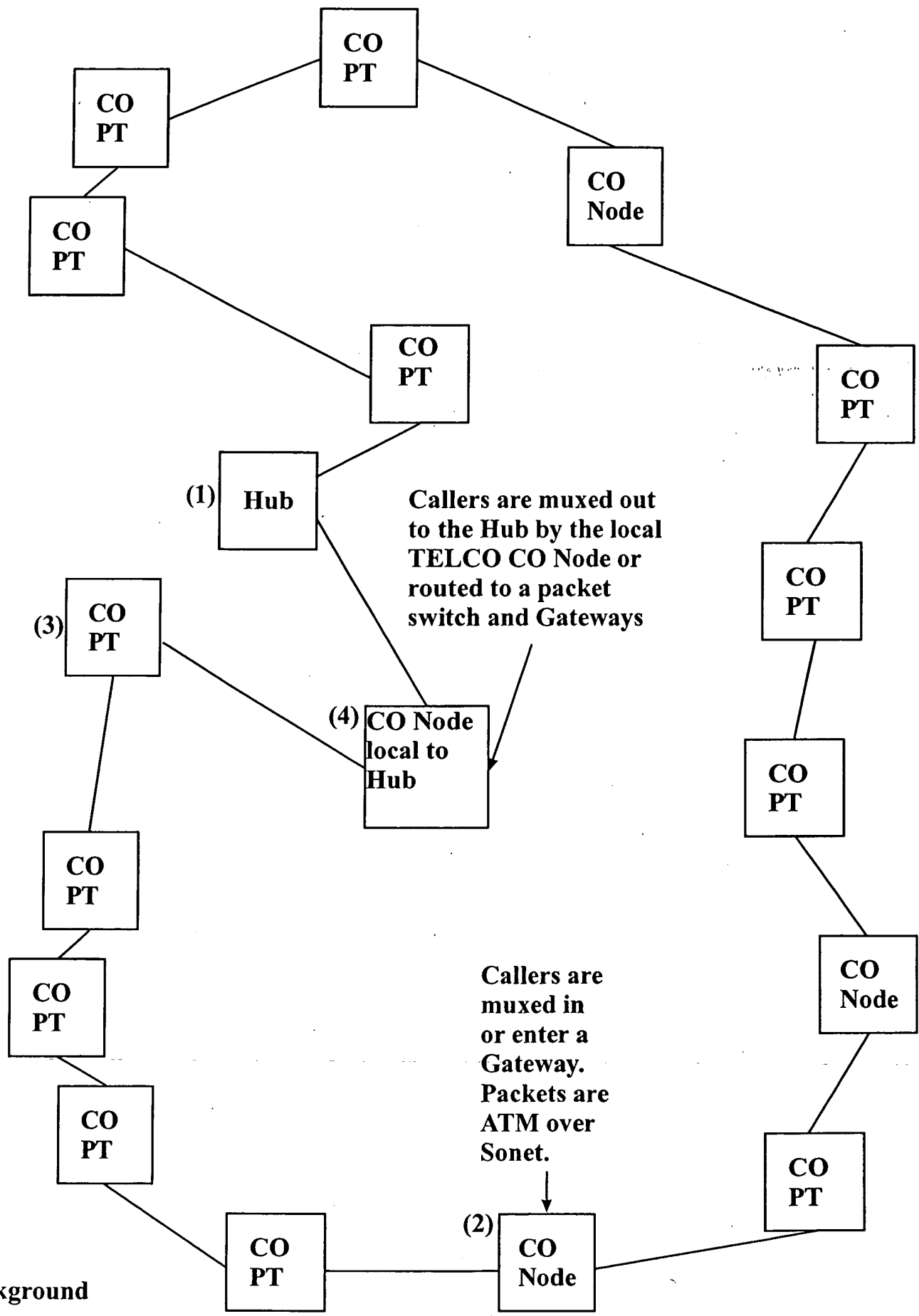


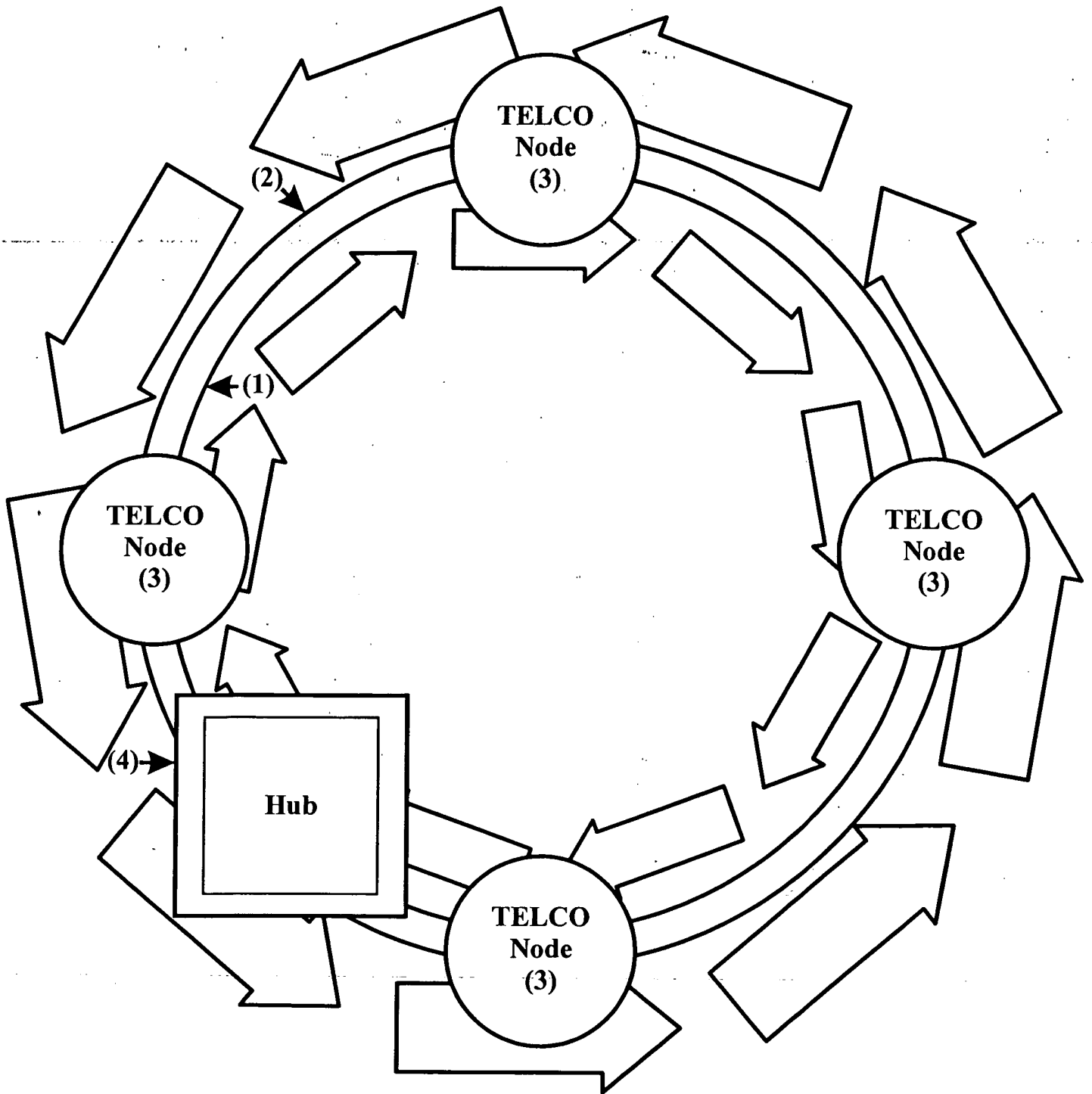
FIG 4





Background Art

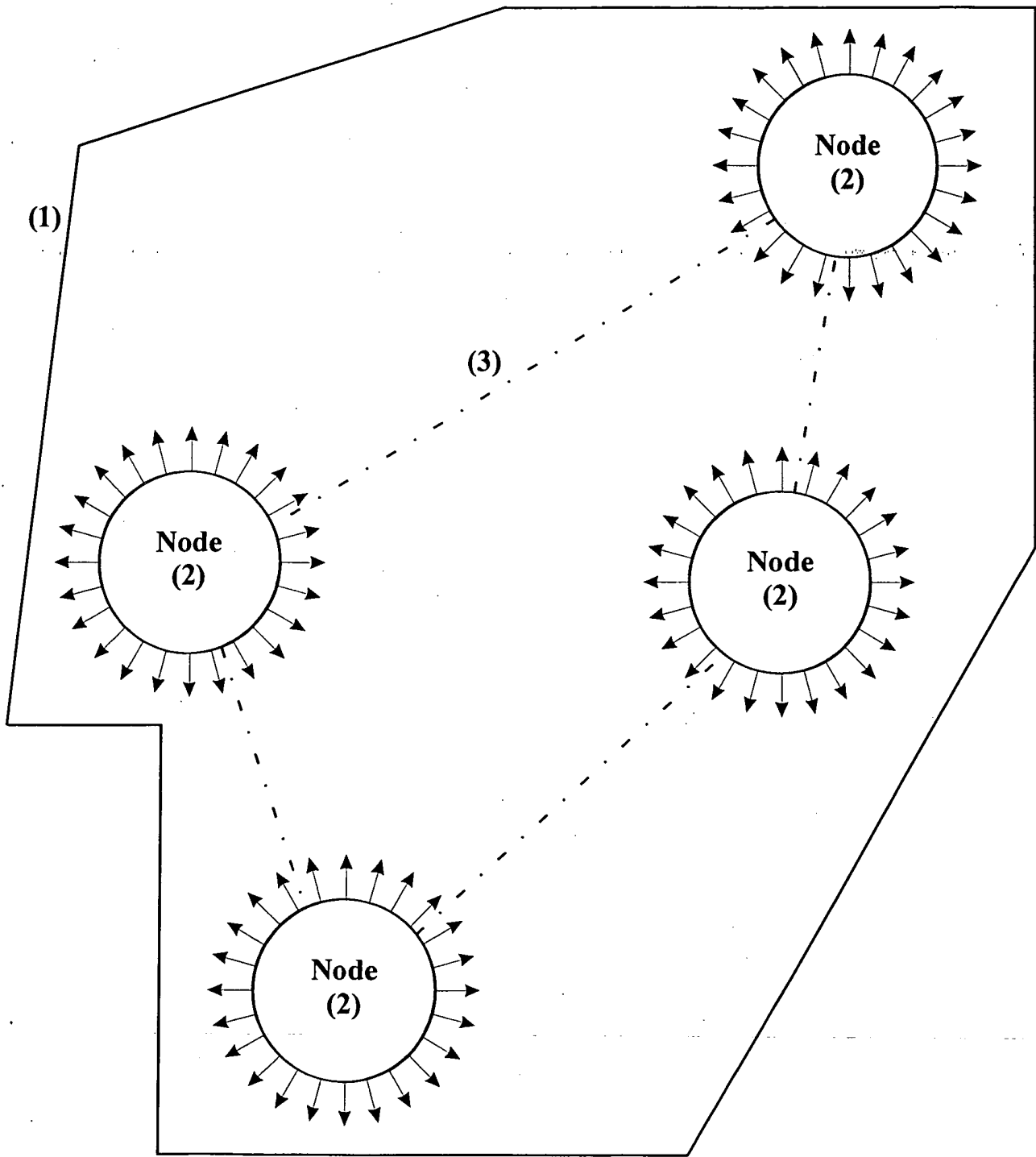
FIG 6



Background  
Art

FIG 7





Background  
Art

FIG 8

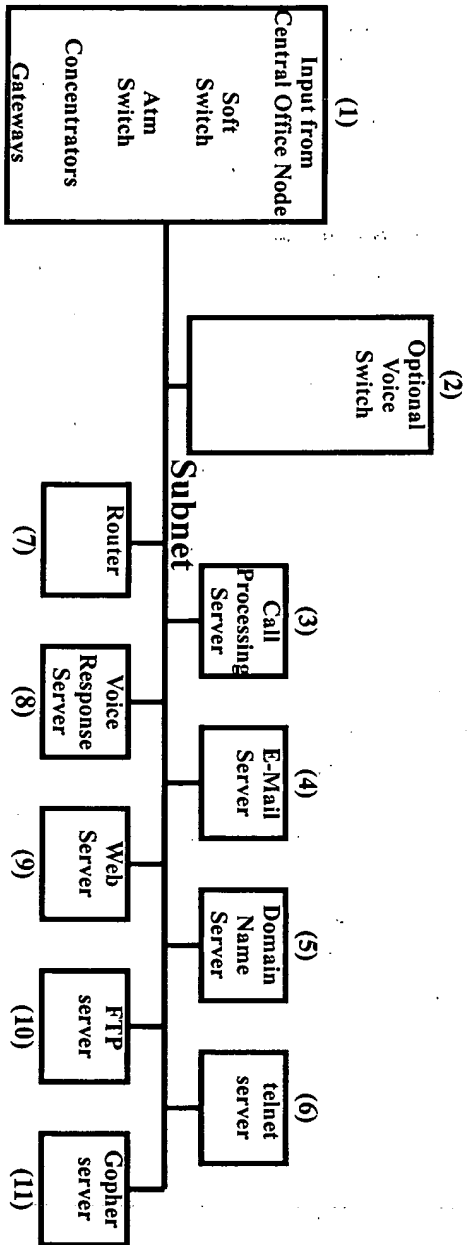


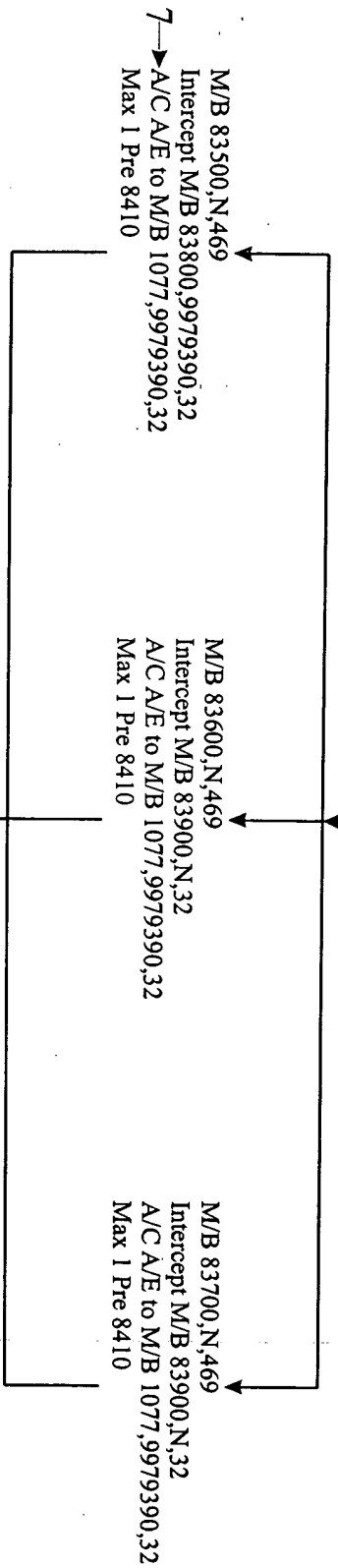
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- 6 → Lunch and Default Intercept M/B 83900,N,32  
 A/C A/E to M/B 1077,9979390,32



M/B 84101,N,469  
 Business hours intercept M/B 83800,9979390,32  
 A/C A/E to M/B 1077,9979390,32  
 Lunch and Default intercept M/B 83900,N,32  
 A/C A/E to M/B 1077,9979390,32

FIG 10

Application located in Node 1  
 Default security code KUNIK or 58645  
 Voice Doreen Panico  
 User transfer on all trunks. Call forward on R/N/A on all trunks.